Relatedness Theory

An Exploration from Ontological Foundations to a Unified Framework of Existence

Xiongwei Wang

Universe Witnesses Me

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Detailed Table of Contents for Relatedness Theory

Relatedness Theory....1
Relatedness Theory Open License Statement....3
Detailed Table of Contents for Relatedness Theory....4
Prologue....12
To the Reader:....12
Foreword ——....24
Volume I: The Philosophical Ontology of Relatedness Theory....30
Chapter 1: The Ontological Cornerstone—Pure Being: The Ultimate Background for the Scrutiny of the Possibility of All Possibilities....30
1.1 Introduction: From the Boundaries of the Cosmos to the Abyss of Existence—Why is "Pure Being" Necessary?....30
1.2 "Pure Being": The Unifying Horizon of Infinite Potentiality and the Ultimate Background of Existence....31
1.3 The Ontological Status and Core Nature of "Pure Being"....33
1.4 The Crucial Role and Influence of "Pure Being" in the Genesis and Evolution of the Cosmos in Relatedness Theory....38
1.5 Chapter Summary: Departing from "Pure Being"—The Logical and Ontological Origin Point of Relatedness Theory....43
Chapter 2: Primordial Vectors (PVs)—Potential Distinguishable Units Carrying "Relational Propensity"....45
2.1 The Proposal of "Primordial Propensity": Seeking the Most Generalized Specification After Pure Being and Before Relation....46
2.2 From "Primordial Propensity" to "Primordial Vector": The Evolution of the Name and its Theoretical Implications....49
2.3 The Core Definition of PVs: Distinguishable Units of Potentiality and the "Genes" of Relation....52
2.4 Core Characteristics of PVs: Unfolding Centered on "Inherent Necessary Propensity"....53
2.5 Core Functions of PVs: Laying the Foundation for Relation Generation and Self-Activation....57
2.6 Re-examining the Fundamental Distinction Between PVs and DPs: From "Tending to Relate" to "Having Related"....58
2.7 Chapter Summary: Primordial Vectors—Potentiality Messengers Carrying the Initial "Intention" of Cosmic Relation Generation....59
Chapter 3: Commonality Self-Activation Mechanism (CSAM)—The Genesis from Pure Being Potentiality to Primordial References and Relational Reality...60
3.0 Introduction: A Non-Teleological Exploration of Structural Origin—The Function and Positioning of the Commonality Self-Activation Mechanism 60
3.1 Operational Prerequisites for CSAM: The Background of Pure Being, the "Relational Propensity" of Primordial Vectors, and Potential Commonality....61

3.2 The Core Mechanism of CSAM: The Synergistic Dual Paths for the Birth of a Commonality Reference (CR)—The "Focusing" of Superpositional Emergence and the "Solidification" of Entangled Stabilization.....64
3.3 The Fundamental Characteristics of CSAM: Strict Non-Teleology, Pure Self-Organization, and Probabilistic Genesis.....72
3.4 The Direct Historical Consequence of CSAM: The Foundational Significance of the First Commonality Reference (CR).....74
3.5 The Post-CSAM Era: From the "Defining Field" of CRs to Identifiable Relational Networks Demarcated by "Pure Nothingness".....77
3.6 Chapter Summary: Commonality Self-Activation—The Genesis Symphony of the Cosmos from Absolute Potentiality to Structured, Demarcated, and Identifiable Relational Reality.....83
Chapter 4: Commonality Reference (CR)—The Emergent Order, Referential Cornerstone, and Evolutionary Core of "Relational Reality".....85
4.0 Introduction: From the Chaos of "Pure Being" Potentiality to the Question of Order in "Relational Reality"—The Ontological Status and Exploratory Program of CR.....85
4.1 Ontological Origins and Emergent Mechanism of CR: From the Interactive Logic of PVs to Self-Organized Generation of Stable Reference.....88
4.2 The Fundamental Referential Effect of CR: How DPs Networks, Driven by BSO, Exhibit Order and Organization Under the Reference of CR (and its Inherent "Identifiability Threshold"), and Define the Tableau of "Relational Reality".....93
4.3 The Hierarchical Structure of CR: SRO, CRO, ARO as Reference Systems of Different Scopes, Degrees of Abstraction, and "Identifiability Thresholds," and their BSO-Driven Mutual Construction and Evolution.....100
4.4 The Dynamic Lifecycle and Evolutionary Propensity of Commonality References (CRs): The "Displacement" of "Existence Basis" Driven by EEP.107
4.5 Identifiability Threshold (IT): The Inevitable Logical Form and Functional Boundary of a CR as a Finite Reference within Infinite Potentiality....113
4.6The Profound Philosophical Implications of Commonality References (CRs) and the Holism of the Cosmic Tableau in Relatedness Theory.....116
4.7Chapter Summary: Commonality Reference (CR)—The Endogenous, Dynamically Evolving Cosmic Order and Dynamic Cornerstone of Evolution in "Relational Reality".....121
Chapter 5: Dependency Path (DP)—The Dynamic Threads Weaving "Relational Reality" and the Fundamental Carrier of Interaction.....123
5.0 Introduction: From "Referential Framework" to "Relational Fabric"—The Origin of Dependency Paths.....123
5.1 Core Definition and Fundamental Characteristics of Dependency Path (DP): Activated "Relational Propensity".....124
5.2 Generation and Weaving of Dependency Paths (DPs): "Responsive" Realization Under a CR's "Defining Field".....127
5.3 Core Functions of Dependency Paths (DPs): As Carriers for the Transmission of Information, Influence, and Constraint.....131
5.4 Diversity and Attributes of Dependency Paths (DPs).....134

5.5 The Relationship Between Dependency Paths (DPs) and Relative Entities (REs): From "Relational Fabric" to "Manifested Patterns".....137
5.6 The Core Role of Dependency Paths (DPs) in the Dynamics of Relatedness Theory.....140
5.7 Chapter Summary: Dependency Paths—The Dynamic Connections and Generative Threads of Cosmic Relational Reality.....142
Chapter 6: Relatedness System (RS)—The Dynamic Relational Whole Centered on a CRO and the Fundamental Tableau of Existence.....144
6.0 Introduction: From "Relational Fabric" to Macroscopic "Units of Existence"—The Cosmological and Individual Significance of Relatedness Systems.....144
6.1 The Core Essence of a Relatedness System (RS): The "Governing Domain" and "Identity Cornerstone" of a Central Commonality Reference (CRO).....145
6.2 Inward Specialization and Hierarchy: Specific Commonality Reference (SRO) as a Functional Subdomain (RL) within the CRO Framework.....148
6.3 All Things are Systems: The World Composed of Innumerable Relatedness Systems (RSs) and their Interaction Under an Encompassing/Inclusive Commonality Reference (ARO).....151
6.4 "I" as a Relatedness System: The "Self" (RS_Self) as a Core Reference in a Relational World.....155
6.5 Unified Dynamics of Relatedness Systems (RSs): Existence-Evolution Paradox (EEP), Existence-Evolution Axis (EEA), and Global Bidirectional Self-Organization (BSO).....159
6.6Dual Identity of "Objects of Existence": The Relative Distinction Between RS and RE and its Referential Basis.....162
6.7 Relatedness System (RS): The Core Unit for Dynamic Combination, Boundary Expansion, and Functional Emergence 163
6.8Chapter Summary: Relatedness System—Relatedness Theory's Unified Perspective for Understanding Structured Existence and its Dynamic Evolution.....166
Chapter 7: Relatedness Level (RL)—Structural Differentiation and Operational Specialization within a "Relatedness System".....168
7.0 Introduction: From "System as a Whole" to "Internal Constitution"—Introducing the Concept of Relatedness Level.....168
7.1Core Demarcation of a Relatedness Level (RL): A Specific Relational Domain Organized by an SRO within the CRO Framework.....169
7.2Emergence and Constitution of a Relatedness Level (RL): The Local "Defining Field" of an SRO and Specialized Dependency Paths and Patterns 171
7.3Core Characteristics and Operational Modes of a Relatedness Level (RL).....173
7.4Interaction Between Relatedness Levels (RLs): Hierarchical Operation of "Global Bidirectional Self-Organization (BSO)" within a "Relatedness System (RS)".....176

7.5Dynamic Evolution of a Relatedness Level (RL): An RL's Own "Existenc e-Evolution Axis (EEA_RL)" and its Relation to the Overall EEA of the RS 18 1
7.6Chapter Summary: Relatedness Level—The Structural Unit for Internal Order Differentiation and Diversified Operation in Complex Systems. . .184
Chapter 8: Relative Entity (RE)—A Phenomenal Pattern, Projected by an SRO on the Basis of a CRO-Screened Dependency Path Network, All of Whose Spe cifications are Relative.....186
8.0 Introduction: From Unidentifiable Potentiality to Experiential Phenome na—The Emergent Path of "Relative Entities" in Relatedness Theory....186
8.1 Core Demarcation of a Relative Entity (RE): A Stable Phenomenal Patt ern, Projected by an SRO on the Basis of a CRO-Screened DPs Network, W hose Existence and Specifications are Entirely Relative.....188
8.2 Elucidation of the "Projection" Mechanism: From the CRO-Initially-Sha ped DPs Network (Direct "Precursor" of RE) to the Hierarchical Reference and Dynamic Process of RE Phenomenal Presentation Projected by SRO 19 2
8.3 Thorough Implementation of the "No Intrinsic Attributes" Principle: Th e Hierarchical Relational Origin of All RE Specifications and their Manifest ation as "Projection" and "Relativity".....196
8.4 Other Core Characteristics of REs (As Inevitable Manifestations of "Hie rarchical Projection Patterns").....201
8.5 The Operational Role of Relative Entities (REs) in Relatedness Theor y's Hierarchical Structure and Dynamics.....205
8.6 Chapter Summary: Relative Entity—A Transient Pattern Defined by Hi erarchical Reference, Woven by Relations, Dancing in the Phenomenal W orld.....208
Chapter 9: Pure Nothingness—As the Relative Unmanifested State of Pure Bei ng and the Definer of Phenomenal World Boundaries.....210
9.0 Introduction: In the Infinite Background of "Pure Being," Why is "Pure Nothingness" Necessary?—The Logical Inevitability of the Finitude and Re lativity of Manifested Existence.....210
9.1 The Core Definition of "Pure Nothingness": The Unmanifested Potentia l State of Pure Being, Relative to a Specific Commonality Reference (CR) 2 11
9.2 Core Characteristics of "Pure Nothingness": Potentiality, Dynamism, a nd Profound "Veiling Effect" (and its Relation to a CR's "Identifiability Thre shold").....213
9.3 Manifestation of the "Veiling Effect of Pure Nothingness" in the Hierar chical Structure of Relatedness Theory—Progressive "Relative Domains of Unknowing" and "Unmanifested Potentiality Domains" from CRO to SRO (Dynamically Demarcated by CR's "Identifiability Threshold").....217
9.4 The Foundational Influence of the "Veiling Effect of Pure Nothingness" on Relatedness Theory's "Dynamic View of Causality".....221
9.5 The Role of "Pure Nothingness" in the Core Dynamics of Relatedness Theory (EEP/EEA/BSO).....224

9.6 Fundamental Differences Between "Pure Nothingness" and the Traditional Concept of "Void" (Brief Comparison)....226
9.7 Section Summary: "Pure Nothingness"—A Relative Existence as the Demarcation of Manifestation, the Ocean of Potentiality, and the Veil of Causal Cognition....230
Chapter 10: Evolutionary Rate (v)—The Ontological Roots of the Intrinsic Transformative Propensity of a "Relatedness System (RS)"....232
10.0 Introduction: The Dynamic Nature of a "Relatedness System (RS)"—The Universality and Inevitability of its Intrinsic Transformative Propensity (v)....232
10.1 Philosophical Demarcation, Core Properties, and Overview of Ontological Roots of "Evolutionary Rate (v)"....234
10.2 Ontological Root (I) of v: Infinite Potentiality Pressure (IPP)—Detailed Philosophical Elucidation of the Interface Tension and Possibility Perturbations Between a Finite RS and its Relative "Pure Nothingness" Background (Infinite "Pure Being" Potentiality)....237
10.3 Ontological Root (II) of v: Incompleteness of Foundation (IoF)—The Intrinsic Logical Limitations and Structural Tensions of the Rule System Embodied by an RS's Core CR (CRO and Internal SROs)....240
10.4 Ontological Root (III) of v: Fluidity of Internal Relations (FIR)—The Continuous Microscopic Dynamics of the DPs Network and REs States Constituting an RS's "Relational Reality," and the Inherent Tension of "Existence Maintenance"....243
10.5 Ontological Root (IV) of v: Open System Adaptation (OSA)—The Structural Adjustment Demands Arising from the Co-evolution of an RS as an Open System with its External Dynamic Environment (Other RSs/AROs) 245
10.6 The Overall Effect of v: As the Transformative Driving Force in the "Existence-Evolution Paradox (EEP)"....247
10.7 Chapter Summary: "Evolutionary Rate (v)"—The Intrinsic Root of a "Relatedness System's (RS)" Transformative Propensity in Relational Reality....249
Chapter 11: Existence-Evolution Paradox (EEP)—The Eternal Tension Between a "Relatedness System's (RS)" Persistence and its Transformative Propensity....251
11.0 Introduction: From the Intrinsic Transformative Propensity (v) of a "Relatedness System (RS)" to the Fundamental Contradiction (EEP) Between its "Existence" and "Evolution"....251
11.1 Philosophical Demarcation of the "Existence-Evolution Paradox (EEP)": The Fundamental Dilemma of a Finite RS Between "Persisting As Is" and "Transcending Itself"....253
11.2 Core Constituent Elements of EEP: The Eternal Game Between Transformative Propensity and the Cost of Persistence Under Fundamental Constraints....256
11.3 Operational Mechanism of EEP: The Continuous Interplay of v and T_CR (and h(T)/C_max) within an RS, and the Periodic Rupture of Dynamic Equilibrium....259

11.4 Fundamental Reconstruction of CR: EEP-Driven "Displacement" of "Existence Basis" and its Mechanism.....261
11.5 Philosophical Implications of EEP: Its Universality and Generativity as the Core Engine of Evolution for All Relatedness Systems in Relatedness Theory.....265
11.6Chapter Summary: "Existence-Evolution Paradox (EEP)"—The Intrinsic Tension Driving a "Relatedness System (RS)" Eternally Forward in the Rhythm of "Existence" and "Evolution".....267
Chapter 12: Global Bidirectional Self-Organization (BSO)—The Fundamental Organizing Principle Permeating "Relational Reality," Originating from the Interactive Logic of the Bidirectional Potential Infinity and Inherent Necessary Propensity of "Primordial Vectors (PVs)".....269
12.0 Introduction: Transcending "Mechanism," Exploring the Logical Genesis of "Relational Reality's" Operation—Reshaping the Ontological Status of BSO.....269
12.1 Fundamental Ontological Roots of BSO: The Interactive Logic of "Primordial Vectors' (PVs)" "Bidirectional Potential Infinity" and "Inherent Necessary Propensity".....271
12.3 Universal Manifestation and Fundamental Shaping Role of BSO in Relatedness Theory's Core Concepts and Dynamic Processes.....277
12.4 BSO's Fundamental Shaping of Relatedness Theory's "View of Causality": From Linear Chains to a Networked, Hierarchical, Bidirectionally Potentially Infinite Process of Mutual Construction.....281
12.5 Philosophical Implications of BSO: As the Meta-Logic of "Relational Reality's" Operation and the Unified Dynamic Tableau of the Cosmos in Relatedness Theory.....283
12.6 Chapter Summary: "Global Bidirectional Self-Organization (BSO)"—The Eternal Dynamic and Fundamental Organizing Principle, Rooted in the Interactive Logic of the Bidirectional Potential Infinity and Inherent Necessary Propensity of "Primordial Vectors," Shaping All Manifestations of "Relational Reality".....285
Chapter 13: Existence-Evolution Axis (EEA)—The Non-linear Historical Trajectory and Possibility Space of a "Relatedness System's (RS)" Core "Commonality Reference's (CR)" Fundamental "Displacement" of "Existence Basis," Driven by the "Existence-Evolution Paradox (EEP)".....287
13.0 Introduction: From the Eternal Operation of the "Existence-Evolution Paradox (EEP)" to the Inevitable Trajectory of a "Relatedness System's (RS)" Evolutionary History—The Proposal of EEA.....287
13.1 Philosophical Demarcation of the "Existence-Evolution Axis (EEA)": The Ordered Historical Record of the "Displacement" of an RS's Core CR's "Existence Basis".....289
13.2 Structural Morphology of EEA: Alternating Cycles of Stable Periods (Plateau Phases) and Transition Nodes.....292
13.3 Driving Mechanism of EEA: The Eternal Operation of EEP and the Synergistic Realization of BSO/CSAM.....297
13.4 Profound Correlation Between EEA and Other Core Concepts of Relatedness Theory.....300

13.5 Philosophical Implications of EEA: As the Ultimate Embodiment of Relatedness Theory's "Processual View of Existence" and the "Topographical Map" of the Evolutionary Epic of All Relatedness Systems.....306
13.6 Chapter Summary: "Existence-Evolution Axis (EEA)"—The Eternal Evolutionary Epic Written by All Relatedness Systems in.....307
Volume II: Philosophical Elucidations of Relatedness Theory.....309
Part One: Who Am I?.....309
—The World is a Relatedness System, and I am its Central Reference.....309
Introduction: The Echo of an Age-Old Question and the Ontological Fog.310
Part One: What "I" Am Not—Dispelling the Entity-Based Illusion of "Self" and Returning to Relational Reality.....311
Part Two: "Who Am I?"—A Multi-layered Relatedness System (RS_Self) Based on and Organizationally Centered Around a Central Commonality Reference (CRO_Self).....313
Part Three: The Dynamic Evolution and Existential Journey of "I"—The EEA_Self Trajectory Driven by EEP.....317
Part Four: The Ultimate Answer to "Who Am I?"—A Dynamically Evolving, Relatively Constructed, Hierarchical Subjective Process within the Cosmic Web of Relations.....324
Part Two: Reinterpreting the Three Great Philosophical Questions.....326
First Question: "Who Am I?".....326
Second Question: "Where Do I Come From?".....328
Third Question: "Where Am I Going?".....331
Part Three: Relatedness Theory's Reconstruction of the Ship of Theseus: The Evolution and Identity Assessment of a Relatedness System Under Commonality Reference Constraints.....334
I. The "Ship" as the Emergence and Demarcation of a Specific Relatedness System (RS_Ship).....334
II. The Replacement Process: "Conflict-Driven Reconstruction (CDR)" or BSO Adjustment within RS_Ship Driven by the "Existence-Evolution Paradox (EEP)".....337
III. "Identity" Judgment: An Assessment of RS_Ship's Trajectory on its "Existence-Evolution Axis (EEA_Ship)" Based on the Selected Core CR.....339
IV. BSO and Holism: The Socio-Physical Mutual Construction of Identity.342
V. Conclusion: Identity—An Assessment of EEA Trajectory Patterns Under CR Reference.....343
Part Four: Relatedness Theory's Reconstruction of the "Observer Perspective Paradox": The Self-Reference Core, Hierarchical Reference, and Experiential Construction.....345
The Ghost in the Inner Theater—.....345
The Answer Based on the Logic of Relatedness Theory—.....345
Part Five: On the Cosmos’s ‘Being’ (□), ‘Laws’ (□), ‘Essence’ (□), ‘Knowing’ (□), and ‘Meta’ (□).....349
First Question: On the "Being" (□) of the Cosmos—The Origin, Substrate, and Enigma of Existence's Genesis.....349

Second Question: On the "Laws" (□) of the Cosmos—The Origin of Order, Cosmic Understandability, and the Enigma of the Nature of Laws.....363
Third Question: On the "Essence" (□) of the Cosmos—The Deep Nature of Spacetime, Consciousness, Information, and Mathematics, and their Unifi cation and Entanglement in "Relational Reality".....371
Part Four: On the "Knowing" (□) of the Cosmos—The Panoramic Evolution of Cognitive Boundaries Driven by the "Evolutionary Dynamics" of a "Cog nitive Relatedness System".....379
Fifth Question: On the "Meta" (□) of the Cosmos—The "Why Thus" of Ulti mate Explanation and the Cosmic Meta-narrative.....386
Part Six: Relatedness Theory's View of Spacetime—As the Dynamic Emergen ce of "Relational Ordinal Structure" Under the Reference of a "Commonality R eference (CR)".....398
I. Dispelling Traditional Conceptions: Spacetime is Neither a Presupposed Absolute Background Nor the Sole Ontological Cornerstone.....398
II. The Essence of Space: In the Vision of Relatedness Theory, as the Eme rgence of "Extensionality" and "Ordinal Relation" Patterns of the "Depend ency Path (DPs)" Network Under the Reference of a Specific "Spatial Com monality Reference (CR_Spatial)".....399
III. The Essence of Time: In the Vision of Relatedness Theory, as the Emer gence of "Changeability" and "Ordinal Relation" Patterns of the "Depende ncy Path (DPs)" Network Under the Reference of a Specific "Temporal Co mmonality Reference (CR_Temporal)".....402
IV. The Unity and Potential "Entanglement" of Spacetime: Originating fro m the Same Foundational "Relational Reality" Network and Co-Emerging Under CR Reference.....406
V. Conclusion: Spacetime—An Order, Dynamically Evolving and Emergent from the "Web of Relations" Under Specific CR Reference; its "Nature" Lie s in Relation, Not in a "Container".....408
Part Seven: The Relatedness Theory Tableau of Dreamscapes—The Dynamics of Reality Construction, Consciousness Boundaries, and Potentiality Interactio n within "My" Inner Cosmos.....410
I: The Universality and Mystery of Dreams:Common Experience and Endu ring Puzzles.....410
II: The Substrate of Dream-Weaving—The Relatedness Theory Generative Mechanism of Ordinary Dreamscapes as "Endogenous Relational Reality" 414
III: The Gauze of Memory—The Relatedness Theory Divide Between the "P rimordial Experience" of Dreamscapes and its Post-Waking "Re-Projectio n".....420
IV: The Beacon of Lucidity—The Relatedness Theory Emergent Mechanis m of "I Realize I Am Dreaming" and the Dynamic Transformation of "Ident ifiability Thresholds (ITs)".....426
V: The Co-Dance of the Inner Cosmos—The Relatedness Theory Mutual C onstruction of "I" and "Dream" in Lucid Dreams, the Dynamics of Identifia bility Thresholds (ITs), and the Analysis of the "Sense of Control".....432

VI: The Mirror of Lucidity—Insights from Dreamscapes in Relatedness Theory on "I," the Boundaries of Reality, Memory Construction, and "Pure Nothingness" Potentiality (Chapter Summary)..... 440
Part Eight: The Evolutionary Epic of Intelligent Civilization: Centering on Humanity's Six Great EEA Transitions..... 447
First Transition: The Birth of Tools—The "Human-Thing" Composite System and the Emergence of CR_ToolUse..... 447
Second Transition: The Revolution of Language and Symbols—The Establishment of CR_Symbolic and the Dawn of "Shared Reality"..... 449
Third Transition: The Dawn of Agriculture—The Founding of CR_Agrarian and the Crystallization of Social Structure..... 451
Fourth Transition: The Breakthrough of the Axial Age—The Awakening of CR_Transcendental and the Reconstruction of the World of Meaning.... 453
Fifth Transition: The Enlightenment of the Scientific Revolution—The "Displacement" of CR_Scientific and the Fundamental Transformation of the Cognitive Paradigm..... 455
Sixth Transition (Ongoing): The Fusion of Information and Intelligence—The Emergence of CR_Symbiotic and the Redefinition of Cognitive Boundaries..... 457
Part Nine: What is Existence? Why Does Existence Exist?..... 460
What is Existence?—A Transient Chord in the Web of Relations: A Dynamically Manifested Pattern Amidst Constraints and Costs..... 460
Why Does Existence Exist?—The Unity of Intrinsic Mechanisms and Necessary Constraints..... 466
Conclusion..... 473
Core Concepts of Relatedness Theory (English Version with Elucidations) 475

Prologue

To the Reader:

There is a question you know intimately, yet seldom articulate.
It does not originate from the external world, but from the very core of your own existence. It is a specter, an eternally present spectator in the theater of your thoughts.
You may have glimpsED it in moments of solitary midnight, felt it when gazing into your own eyes in the mirror, or encountered it frequently when attempting to grasp the deepest meaning of the word "I."
This specter is you, the one currently reading these words.
Not your name, not your body, not your memories, nor the torrent of emotions and thoughts surging through your mind at this moment. But rather, that unlocalizable observer who is aware of all this. An eternally present being, difficult to describe with language.
Now, let us confront it directly.
Please engage in a most pure introspection. Imagine the scene you least wish to face in your life—your complete disappearance. Imagine your funeral, your body laid to rest, your loved ones shedding tears for you. Imagine time flowing on, with no trace of you left in the world.
In this ultimate drama of your "absence," directed by you yourself, there is an extremely important question:
Has that "you," the spectator, truly disappeared?
...

No, you have never left.
You discover that you can imagine the end of the flesh, the demise of the soul, or even the annihilation of the entire world, yet you can never truly experience your own "absence."
Because experience itself presupposes your presence. You are like a character who cannot be killed, for you are the very "perspective" that defines the entire stage.
This paradox is precisely the "first clue" for us to embark on this intellectual adventure.

The root of our confusion, the reason we struggle before the ultimate questions of existence, perhaps lies not in how remote these

questions themselves are, but in a fundamental presupposition, one we have never scrutinized, standing at the deepest foundation of the very logic we use for thinking.

This presupposition is: the world is constituted by "things."

We are accustomed to viewing everything as a "thing"—for example, a table is a thing, an apple is a thing, even "I" am a "thing" to be sought, hidden somewhere in the body or consciousness. We define everything by "what it is," yet we have never considered that "relation," which we have always regarded as an appendage between "things," might actually be the true source from which all "things" emerge.

The core of this book is based on a seemingly simple subversion—

Shifting the foundation of our existence from "entity" to "relation."

It does not consider the universe a static exhibition hall composed of isolated "things," but rather an eternally flowing, mutually entangling storm of "relations." In this storm, you, I, and everything we perceive are not solid "islands," but transiently stable "vortices" interwoven by innumerable streams of relation.

Such a perspective is unfamiliar, even unsettling. To enter it directly is akin to plunging headfirst into the deep sea.

For this reason, I have not rushed to state the theory at the outset. Instead, I have prepared four simple thought experiments.

Here, we presuppose no answers, nor do we use any terminology from *Relatedness Theory*. We need only rely on your innate logic and intuition to create a unique "observational condition" in the space of imagination.

Here, we will strip away the four concepts most familiar to us—"thing," "experience," "self," and "identity"—from the soil of everyday experience upon which they depend.

Then, as calm observers, let us witness together—

When they lose their customary supports, under the scrutiny of pure logic, how their internal structures will begin to loosen. How their self-evident certainty will begin to waver.

Experiment the First: The Multipoint Universe—The Dissolution of "Thing" and the Birth of "Relative Entity"

Opening Setting: Entering the Laboratory of Thought

Let us enter a laboratory of thought to test our most deeply ingrained

beliefs. Please imagine an absolute, infinitely extending, completely homogeneous universe, wherein there is nothing.
Now, we introduce an isolated "point."

First Round of Inquiry: The Nothingness of the Isolated Point

Looking at this sole "inhabitant" of the universe, we begin to ask: This "point," where is it? Is it in motion or at rest? What color is it? What shape? How large is it?
We immediately discover that none of these questions can be answered. In the absence of any other reference, all the specifications we use to describe things—"position," "motion," "shape," etc.—lose their meaning. This isolated "point," although logically "introduced" by us, is, at the level of identifiable phenomena, almost equivalent to nothingness.
Preliminary Conclusion: An isolated "thing," not existing in any relation, possesses no "attributes" that we can articulate.

Second Round of Inquiry: The Birth of Relation

Now, we introduce a second "point."
In this very instant, the nature of the entire universe undergoes a fundamental change. An entirely new "reality" is born—that is, the "relation" between them. We can define the "distance," "relative position," and "relative motion" between them. This "distance" relation is not intrinsic to either point but is co-defined by both. This is the first specifiable determination in this universe.

Third Round of Inquiry: The Emergence of Structure

We introduce a third "point."
Relations become richer and begin to self-organize into "structure." We can now define "angle," "plane," "shape" (such as a triangle). A geometric form constituted purely by "relations" is born from nothing.

Final Contemplation and Introduction of a Concept

So, looking back at that initial "point." Its "existence" being identified by us, its "position" being defined by us—all of this, does it originate from what it intrinsically "is," or from this invisible "web of relations" constituted by it and all other points?
Following the thread of logic, we arrive at a subversive conclusion: any "point" or "thing" that we can identify is not an "independent existent" possessing an intrinsic essence. It is more like a "relational node" or "phenomenal pattern" that stably stands out in a vast relational network due to its unique "connective position" and "interactive mode." All its "attributes" are endowed by this web of relations.

To precisely describe this "phenomenal pattern emerging in relations," Relatedness Theory assigns it a core, technical appellation: 「Relative Entity (RE)」.

The Crucial Role of Relative Entity (RE) in Relatedness Theory
Introducing the concept of "Relative Entity (RE)" is not merely to label a philosophical conclusion. It plays a vitally important, indispensable role in the entire theoretical edifice of Relatedness Theory. The true significance of this thought experiment lies in revealing why the concept of RE is necessary and what function it performs:

As the direct carrier of the "phenomenal world": *Relatedness Theory* posits that the more fundamental level of the cosmos is "Relational Reality," constituted by a dynamic, typically not directly perceivable network of "Dependency Paths (DPs)." And all perceivable "things" in our daily experience—an apple, a thought, a star, a social event—are REs. REs are the bridge connecting the invisible underlying Relational Reality with our experiential phenomenal world. Without the concept of RE, the theory would be unable to explain the world we experience, which is constituted by specific "things."

Thorough implementation of the "no intrinsic attributes" principle: This thought experiment most forcefully proves the core assertion of *Relatedness Theory*—an RE possesses no "intrinsic attributes" independent of its relational network and referential framework. All specifications of an RE originate from the characteristics of its underlying relational network and are manifested only under the "projection" of a specific "Commonality Reference (CR)." This enables *Relatedness Theory* to completely break free from the fetters of traditional entity-based theories and essentialism.

Explaining the unity of "transience" and "stability": An RE is defined as a "transiently stable phenomenal pattern." This perfectly explains why the "things" in our experience possess a certain stability (can be repeatedly identified and interacted with by us), yet are necessarily dynamically changing and have their "lifecycles." Its stability originates from the transient self-consistency of its underlying relational pattern under a specific reference, while its change and demise originate from the fluidity of the underlying relational network and the evolution of the referential framework.

As the "basic constituent" of higher-level systems: REs are the basic units, identifiable and analyzable at the phenomenal level, that

constitute more complex "Relatedness Levels (RLs)" and "Relatedness Systems (RSs)." Only by analyzing the types, attributes, and interaction patterns of REs can we further understand the internal structure and operational logic of a complex system (such as a living organism or a society).

Therefore, the significance of this "multipoint universe" experiment lies precisely in its inviting us, in a clear and profound way, to relinquish the illusion of "absolute entities" and to recognize the logical necessity of introducing the concept of "Relative Entity (RE)." RE is not a simple renaming of "thing," but a fundamental ontological reconstruction of the status of "thing"; it is the cornerstone upon which *Relatedness Theory* reinterprets the entire phenomenal world using "relation."

Experiment the Second: Deconstructing "Seeing an Apple"—The Hierarchical Structure of Experience

Experimental Setting: We begin with a single, complete experience: You see an apple on the table.

Logical Deconstruction: This seemingly instantaneous experience requires the seamless collaboration of at least four distinct operational domains for its establishment. Each domain follows a unique set of operational "rules."

Physical Domain:

Process: Photons depart from a light source, strike the apple's surface, and photons of specific wavelengths are reflected.

Rule: This process adheres to the laws of physics (e.g., quantum electrodynamics). At this level, there are only wavelengths and molecular structures, no "color" or "apple."

Biological Domain:

Process: Reflected photons enter the eye, are absorbed by photoreceptor cells on the retina, and are transcoded into bioelectrical signals.

Rule: This process adheres to the laws of biochemistry. Physical information (wavelength) is here converted into biological information (nerve impulses). The "languages" of these two domains are entirely different.

Cognitive Domain:

Process: Bioelectrical signals are transmitted along the optic nerve to the brain, undergo complex neural network processing, and ultimately, an internal perceptual image of an "apple" and the subjective experience of "red" emerge.

Rule: This process adheres to the algorithms and rules of neural information processing. Biological signals are here converted into cognitive phenomena.

Cultural Domain:

Process: You identify and name this cognitive phenomenon "apple" and understand its related meanings (edible, fruit, etc.).

Rule: This process adheres to the rules of language, concepts, and social consensus. Cognitive phenomena are here endowed with the meaning of cultural symbols.

Logical Predicament: We face a fundamental problem: The "rules of the game" and "languages" of these four operational domains—physical, biological, cognitive, cultural—are entirely different and mutually incompatible. How can they collaborate so perfectly to produce a unified, coherent experience of "seeing an apple" without any sense of rupture?
This reveals a structural blind spot in our understanding of reality.

Reframing the Question: This problem can no longer be seen as a linear "causal chain." We must shift our mode of inquiry: Is the structure of reality itself constituted by the hierarchical nesting of these "functional domains" with different "operational rules"? If so, how should we describe this hierarchical structure that is both differentiated and unified?

The Inevitable Manifestation of Logical Form: To logically describe such a structure, a new understanding emerges: The cosmic "web of relations" is not planar, but three-dimensional and hierarchical. A complex whole (such as the event "you see an apple") is constituted by multiple relatively independent "functional domains" or "subdomains of existence," each possessing its own specific operational rules.
To precisely articulate this kind of relatively independent "functional domain" or "subdomain of existence" defined by specific "operational rules" within a unified whole, *Relatedness Theory* assigns it an appellation: Relatedness Level (RL).

The Role of "Relatedness Level (RL)":

As an organizational method for complexity: The cosmos constructs complexity by organizing relations into different RLs. Each RL is like a "specialized module," processing specific types of processes.

As the boundary of applicability for "effective laws": The reason physics, biology, and cognitive science can be independent disciplines is precisely because they study the unique operational logic of different RLs.

As the locus for the occurrence of "emergent" phenomena: It is precisely the hierarchical nesting of RLs that makes it possible for entirely new attributes (such as "conscious experience" emerging from neural signals), not possessed by lower levels, to emerge at higher levels.

Through this experiment, our perspective naturally shifts from a planar worldview to a hierarchical one. This is the second crucial intellectual shift for entering the world of *Relatedness Theory*.

We continue this intellectual adventure.

In the first two experiments, we have dismantled the entity-based, planar understanding of external "things" and "experience." Now, we turn this intellectual searchlight towards ourselves—that most familiar, yet most mysterious, existent: "I."

This experiment will be more arduous; it will directly confront the core of our subjectivity and attempt to draw out *Relatedness Theory's* fundamental insight concerning the "self" from a most profound paradox.

Experiment the Third: The Observer Paradox—The Referential Core of "I"

Experimental Setting:

This time, we do not observe the external world but engage in pure introspection. Please conduct this famous thought experiment: Imagine your own non-existence.

You can imagine a world without you, your loved ones living on as usual; you can even imagine a more specific scenario, such as your funeral, your tombstone standing in a quiet cemetery. You can construct any detail of this scenario: the weather, the atmosphere, the expressions on others' faces...

Logical Deconstruction:

Now, please answer with the utmost honesty: In this scene of "your

absence" that you have painstakingly constructed, has that "you" who is observing and experiencing disappeared?
You will immediately discover an unavoidable specter.
You can make the "you" as a "character" exit the stage in the drama of thought; but you can never make that "you" as the "spectator" and the "theater itself" exit. Your experience of your own absence, precisely in a profound and paradoxical way, highlights your "presence."

Logical Predicament:

We arrive here at a profound paradox. This "the one who is present"—this background to all experience, this unified, continuous "I"—what exactly is it?

Is it my body or brain? It seems not. For in the experiment just conducted, my body (as the imagined "character") could be absent, could even be "observed" by me, while that "observer" still existed independently. The observer, and the observed physical object, are experientially separate.
Is it an immaterial "soul" or "conscious entity"? This is an ancient answer, seemingly capable of resolving the problem. But it immediately creates a deeper, insurmountable logical chasm: How does an immaterial "soul" interact with my material brain to drive my body and perceive this world? This is tantamount to introducing a larger, mysticism-based puzzle to explain a smaller one.
The logic here seems to lead us into a dilemma: this "I" as subject, its "presence" has a tenacious persistence, yet we can neither locate it in the physical world nor provide a self-consistent explanation for its non-physical existence.

Reframing the Question:

The root of this impasse, perhaps, lies in our still using "entity-thinking" to ask: "What thing is 'I'?"
Perhaps we need to shift our mode of inquiry: If "I" am not a "thing" that can be found, could it possibly be a "function," a "structure," an "organizational principle"? What role does that un-absentable "one who is present" actually play?

The Inevitable Manifestation of Logical Form:

To logically explain this "structural necessary presence," its logical direction also becomes clear: Within "I," this complex system constituted by innumerable physiological, psychological, and social relations, there must exist a highest-order "referential framework" serving as the

organizational core.
It is not an entity; we cannot "see" it, because all our acts of "seeing" themselves presuppose it. Its function is to serve as the ultimate "gathering point" and "unifier" for all dispersed experiences (perceptions, thoughts, emotions from different "Relatedness Levels").
Any given experience must be "referenced" by this core framework, stamped with the label "mine," to be integrated into a unified subjective world with a first-person perspective. It is the "centripetal force" of all my experiences, the "coordinate origin" of my subjective world.
This non-substantial, structural "central referential framework," as the ultimate locus of all experience, is the answer to the "observer paradox." It cannot be absent because it is the very structure that makes "experience" possible.
To precisely articulate this logically necessary "organizational core" and "referential framework," Relatedness Theory assigns it an appellation: 【Central Commonality Reference (CRO)】. In the system of "I," it is called the 【Core Self-Reference (CRO_Self)】.

The Role of "Central Commonality Reference (CRO)":

As the source of "subjectivity": The continuous operation of CRO_Self gives rise to the "first-person perspective" and "self-awareness" we experience.

As the guarantor of "unity": It integrates heterogeneous information flows from different "Relatedness Levels (RLs)" into a coherent experience.

As the cornerstone of "identity": The "commonality rules" it embodies (such as core beliefs, life narrative) define the uniqueness of "my being me."

By confronting the paradox of "I," our exploration also naturally shifts from searching for an "entity self" to understanding an "organizational principle (CRO)" as a "referential core." This is the third step in our intellectual shift, and the most crucial one. We have now touched upon the core mechanism in *Relatedness Theory* that defines "whole" and "identity."

We continue this journey of intellectual shift.
In the first three experiments, we have progressively examined the entity-based, isolated understanding of "thing," "experience," and "I," and have begun to recognize the necessity of logical forms such as "phenomenal pattern," "hierarchical structure," and "central reference."

Now, we will conduct the final, and most comprehensive, thought experiment. It will integrate our understanding from the preceding three experiments, challenge our understanding of that most stubborn belief —"identity"—and ultimately lead to the ultimate framework *Relatedness Theory* uses to describe all complex wholes.

Experiment the Fourth: The Ship of Theseus—The Maint enance of a "Whole"

Experimental Setting:

We enter a millennia-old philosophical paradox: The Athenians, to commemorate the hero Theseus, preserved the ship he returned on from his expedition in the harbor. As years passed, the ship's planks began to decay. The Athenians continuously replaced the decaying old planks with new, identical ones.

This process continued for several centuries, until one day, all the old planks on the ship had been replaced with new ones.

Meanwhile, a collector silently gathered all the discarded old planks that belonged to the original Ship of Theseus and reassembled them, restoring the ship to its initial appearance.

Logical Deconstruction:

Now, there are two ships in the harbor. A profound question confronts us: Which one is the "true" Ship of Theseus?

Let us examine this dilemma using different "standards" and observe how our pre-existing notions are challenged.

If the standard is "material constitution": If "identity" depends on the original matter constituting it, then the ship assembled from all the old planks is the "true" Ship of Theseus. But this conclusion immediately leads to unacceptable consequences: the entity in the harbor, continuously maintained, carrying history, and identified by everyone as the "Ship of Theseus," becomes an "impostor." This severely contradicts our intuition and historical facts.

If the standard is "form and function": If "identity" depends on its external form and core function (e.g., as an identifiable commemorative ship with a specific design), then the ship continuously repaired in the harbor seems to better meet the standard, as it always maintains that form and function. But the problem is, the ship assembled

by the collector from old planks also perfectly replicates this form. By this standard alone, we seem unable to make a unique judgment.

If the standard is "historical continuity and social naming": If "identity" depends on an uninterrupted "historical trajectory" and "social consensus," then the answer becomes relatively clear. The ship in the harbor possesses a continuous, unbroken "history of existence," and, moreover, it has always been collectively and continuously identified and named "The Ship of Theseus" by the Athenian social group. The collector's ship, however, has a broken history; it was "created" at a new time and place, and it is not endowed by society with that sacred name.

Logical Predicament:

We discover that the "identity" of the "Ship of Theseus" is not an objective fact hidden within the ship's hull, awaiting our discovery. It is not a "yes" or "no" question.

Its answer depends entirely on which set of "standards" or "referential framework" we choose for judgment. If we choose "matter" as the standard, we get one answer; if we choose "history and social consensus" as the standard, we get a diametrically opposed answer.

"Identity," this seemingly solid concept, at this moment dissolves into a reference-dependent, relative assessment.

Reframing the Question:

The crux of this paradox, perhaps, lies in our still asking a potentially limited question: "Which *thing* is the true Ship of Theseus?"

This invites us to shift our mode of inquiry, to ask that deeper question about the "whole": How can a complex "whole," while its constituent "parts" are continuously changing, still maintain its "identity" and "unity" across time? What is maintaining this dynamic whole?

The Inevitable Manifestation of Logical Form:

To logically describe this "dynamic whole maintaining identity amidst flux," its logical extension naturally leads to the necessity of an entirely new concept. The core characteristic of the "whole" described by this concept lies not in its material constitution, but in:

It is defined and governed by a core "organizational principle" (e.g., the collection of historical, functional, and cultural meanings that define "The Ship of Theseus" as what it is).

It is constituted by innumerable dynamic "internal relations" that collectively maintain its structure and function (e.g., relations between planks, and relations between the ship and society).

It possesses a relatively clear yet continuously interacting boundary with its environment.

It perpetuates its existence through time by continuous self-maintenance and adjustment to cope with internal decay and external perturbations.

This "dynamic system," defined by its core organizational principle and continuously undergoing self-maintenance and reconstruction amidst change, is the answer to the Ship of Theseus paradox.

To precisely articulate this "dynamic, self-organizing whole defined by a core principle," *Relatedness Theory* assigns it an appellation: 【Relatedness System (RS)】.

The Role of "Relatedness System (RS)":

As an integrative analytical framework: RS is the ultimate framework *Relatedness Theory* uses to describe and analyze all complex "wholes." An atom, a cell, a person, a society, a theoretical paradigm—all are RSs.

Unifying all core concepts: The RS concept perfectly integrates all the logical forms discovered in our previous experiments: An RS (like the Ship of Theseus as a whole), is organized by its core CRO (defining its identity—the Name), internally contains multiple RLs (such as physical structure, cultural symbolism, etc.—different Natures), and manifests as a series of ever-changing REs (such as planks, reputation, etc.—Phenomena).

As the basic unit of evolution: It is precisely this RS as a whole that is the fundamental protagonist experiencing the "Existence-Evolution Paradox (EEP)" through time and continuously evolving along the "Existence-Evolution Axis (EEA)."

Through the "Ship of Theseus" experiment, our perspective is also able to transcend the obsession with "static identity" and finally discover the organizational unit *Relatedness Theory* uses to grasp all things in the cosmos—the "Relatedness System (RS)." This is the final, and most crucial, step in our intellectual shift.

Conclusion of the Prologue—

Thus far, the thought experiments are complete.

The true intention of this prologue was not to provide you with a set of conclusions, but rather to hope that, together with you, we could

conduct a prudent, logical investigation into the most fundamental presuppositions of our thought. Its true achievement lies not in what we have obtained, but in what we can henceforth ask.

These four thought experiments, like four successive focusings, have refined and transformed our initial, hazy inquiries about the world into a series of more profound, more penetrating fundamental puzzles:

We initially asked: What is the essence of a "thing"? The logic of the experiment led us to a possible answer: any "thing" is perhaps merely a stable phenomenal pattern in a relational network—a 「Relative Entity (RE)」. But this did not quell our curiosity; instead, it ignited deeper confusion: If "thing" dissolves into "relation," then what is the ontological status of "relation" itself? Is it an independent reality, or an attribute of some more fundamental existence? When the relation of "distance" arises between two previously unrelated "points," where exactly is this "distance" born? Upon what does it depend for its existence?

We then asked: What is the structure of "reality"? The logic of the experiment revealed its possibly hierarchically nested tableau: a three-dimensional fabric constructed by 「Relatedness Levels (RLs)」 with different operational rules. However, a huge chasm also thereby appeared: these "levels"—physical, biological, cognitive—with their disparate rules, what is the "lingua franca" for communication between them? What universal mechanism allows a photon at the physical level to be seamlessly "translated" into a nerve impulse at the biological level, and finally "transcoded" into a subjective experience at the cognitive level? How is this trans-level informational fidelity and semantic coherence achieved?

We turned inward, asking: That all-governing "I," where exactly is it? The logic of the experiment compelled us to abandon the search for an intrinsic entity and pointed towards a 「Central Commonality Reference (CRO)」 as the coordinate origin of experience. But a most unsettling question concerning "genesis" thereby emerged: In a universe presumed to be homogeneous and centerless, how could the first "center" possibly emerge? How can a pure relational network spontaneously, from within itself, generate a structure capable of "referencing" itself, thereby creating the initial distinction between "subject" and "object"? What, precisely, is the "0-to-1" origin mechanism of order and reference?

We finally asked: Upon what is the identity of a "whole" maintained? The logic of the experiment indicated that it is maintained by a dynamic 「Relatedness System (RS)」 that preserves its organizational principle amidst flux. This transforms the inquiry about "identity" into a more

universal question: If the universe is constituted by innumerable such "Relatedness Systems"—atoms, stars, you, I—then, what are the basic rules of interaction between these systems? Where does the boundary of one system end, and where does the boundary of another begin? When they touch, collide, fuse, how do their respective identities and rules change? What, then, is the most underlying dynamic mechanism that maintains a system's "identity" amidst continuous internal and external impacts and the replacement of internal parts?

You see, the terminus of these four thought experiments is not four isolated mountain peaks, but a vast plateau to which they have led us. Here, we discover that all these more profound inquiries derived from the experiments—concerning the texture of "relation," the communication of "hierarchy," the origin of "center," and the interaction and maintenance of "system"—are not unrelated to each other, but are different facets of the same, immense, intrinsically unified fundamental problem.

And this sole, ultimate problem, interwoven by all inquiries, is the eternal leitmotif of all human philosophical and scientific exploration:

What is existence? Why does existence exist?

When you can re-examine these questions in this way, as an intrinsically related logical whole awaiting an answer, then this prologue will have achieved its mission.

And the entire content of the original work of *Relatedness Theory* is precisely a systematic, grand philosophical construction, departing from a sole ontological cornerstone, in response to this series of "questions."

Relatedness Theory

Foreword ——

(*Relatedness Theory* originates from solitary contemplation and the revelation of internal logical consistency, forming a self-contained system. If it bears resemblance to existing cognitions, it is not my deliberate reference, but the echo of truth itself.)

Since the first glimmer of consciousness ignited in the cosmos, a series of fundamental questions has followed like a shadow, pervading the rise and fall of civilizations and the succession of ideas: What does "Being," as "Being," truly mean? What is the ultimate substrate that constitutes what we call "Reality"? Who are we? Where does the world come from? And where is it going? What are the ultimate cornerstones that make up this multifarious myriad of phenomena...?

We, as a ripple fortuitously arisen in the long river of cosmic evolution, bear the legacy of millennia of human exploration. From the Eastern Laozi and Zhuangzi's "Tao follows Nature," to the ancient Greek Thales' "water as arche" and Democritus' "atomism"; from Plato's "world of Forms" to Aristotle's "substance" and "potentiality"; through Newton's mechanical universe constructed with absolute spacetime and elementary particles, Maxwell's electromagnetic field bridging action at a distance, to Einstein's reshaping of spacetime with the principle of relativity and curved geometry... every profound leap in cognition has attempted, with a more universal framework and more refined language, to capture that seemingly boundless and ever-changing tableau of existence. We are accustomed to looking inward, attempting to find the smallest units that constitute all things—those believed to be independently existing and possessing intrinsic attributes—be they material particles, energy fields, or spiritual units of consciousness, a priori logical or mathematical structures. We firmly believe that once we understand the inherent properties of these fundamental "Things" and the rules of their interactions, we can ultimately decode the mysteries of the entire cosmos. The scalpel of reductionism cuts through the layered

complexities, the clock of determinism sets a rigorous script for the trajectory of the cosmos, and the ghost of teleology silently endows the evolution of all things with seemingly inevitable meaning and direction.

However, when we, with the most thorough honesty, stand at the forefront of the twenty-first-century intellectual landscape, a profound, pervasive sense of unease arises. Those ontological cornerstones once revered as sacrosanct are, in the face of the perplexing revelations of quantum mechanics, the astonishing discoveries of cosmological observation, the subtle insights of complexity science, and the persistent questioning of the nature of consciousness, revealing deep, seemingly unbridgeable fissures.

Quantum mechanics, with its irrefutable experimental evidence, unveils a microscopic world starkly different from macroscopic intuition: entangled particles, seemingly disregarding the separation of spacetime, exhibit "spooky action at a distance," thoroughly subverting our naive realism based on "separate individuals"; the act of observation itself profoundly intervenes in and shapes the observed reality, blurring the clear boundary between subject and object; the "attributes" of elementary particles (such as position, momentum, spin) are not intrinsically carried by them, but are generated and manifested only in complex interactions with other fields or measuring devices. This fundamental level of the cosmos seems not to be composed of solid, divisible "building blocks," but rather resembles a ceaselessly vibrating, potentiality-filled, dynamically generated web constantly forming through interrelation.

Meanwhile, the emergence of life—from inorganic to organic, from single cells to complex multicellular organisms, and then to the appearance of intelligent life—poses a severe challenge to pure reductionism. The overall function of a living cell is far from a simple linear sum of the attributes of its constituent molecules; and the generation of consciousness, one of the most mysterious phenomena in the cosmos, cannot be easily reduced to the electrochemical activities of neuronal clusters. How does self-organized order spontaneously arise from a seemingly disordered background? Why can complex systems exhibit creative behaviors where the whole is greater than the sum of its parts and is not simply predictable? These questions compel us to re-examine the relationship between "whole" and "part," "structure" and "function," and the potentially generative role that "relation" itself might play.

Furthermore, when we attempt to cast our understanding towards the origin and ultimate fate of the cosmos, existing theoretical models often fail at singularities or rely on unverified additional assumptions. And the

inquiry into "existence" ultimately, in a recursive manner, returns to our own cognitive subject: our conceptual frameworks, logical rules, and mathematical tools used to understand the world—where do their own foundations lie? If even our cognitive behavior itself is part of cosmic evolution, a complex relational process of generating and processing information under specific constraints, then where can we find a more objective Archimedean point, transcending all references, to "justly" assess the reality of the cosmos?

Traditional frameworks of thought, which take isolated "things" or "entities" as their ontological starting point, are increasingly inadequate and often lead to intractable paradoxes when confronted with these fundamental challenges from the frontiers of physics, life sciences, cognitive science, and cosmology. Linear causal chains fail to capture the feedback loops, non-local correlations, and global synergistic effects prevalent in complex networks; the rigid practice of viewing "things" as possessing "intrinsic attributes" cannot explain the profound relativity of attributes and their extreme dependence on context; and the effort to explain "relations" by starting from presupposed "things" often demotes relations to secondary, external connections, failing to touch upon the potentially more fundamental ontological priority that "relation" itself might possess.

The proposal of Relatedness Theory aims to construct an unprecedented relational ontology. It is not intended to prove the superiority of any particular theory in the arena of human thought, nor is it to chase any recognition or achievement in the worldly sense—these, for the endeavor of seeking the origin of existence, are all but fleeting clouds. Its birth stems from a more primordial, more profound inner impulse: an almost frenzied, incomparably strong desire for freedom, attempting to transcend "existence" itself; a way to re-"witness" that mysterious and unfathomable cosmos with the most thorough honesty, the most unified perspective, and in a manner that can best accommodate our dual identity as "cognitive subjects" and "existential individuals." This is an "eye-to-eye engagement" with the cosmos, devoid of presuppositions, aiming to re-understand and re-experience, from the most fundamental level, that inseparable, deeply interconnected, and shared-destiny bond between ourselves and this infinitely related universe.

Relatedness Theory posits—perhaps our very foundational assumptions about existence require a thorough revolution. It does not aim to overthrow or replace the specific achievements of existing

science, but rather attempts to delve into a more fundamental ontological level, challenging the seemingly self-evident "entity-priority" assumption, and proposing a view of reality centered on "relation." *Relatedness Theory* posits that the ultimate reality constituting the cosmos is not isolated points, but the dynamic web connecting all things; everything we experience, including ourselves, is merely a transient pattern emerging under specific conditions from this omnipresent web of relatedness. This is not a mending or improvement of existing theories, but a thorough Ontological Turn, a fundamental rewriting of the basic grammatical rules of "existence." It attempts to provide an entirely new "decoder" for reading the cosmos—this great work woven from relations, full of dynamism and hierarchy. This core shift in perspective endows us with an unprecedented power to re-examine those fundamental questions that have perplexed humanity for millennia.

Imagine if the "fabric" of the cosmos were not composed of solid "threads" (entities in the traditional sense), but by the very act of "weaving" itself (i.e., the generation and evolution of "relation"). Then our entire understanding of existence would be reshaped:

The ultimate substrate of existence is no longer matter or energy, but the sole, infinitely rich "Pure Being (PB)." This is not an empty void, but a potentiality background intrinsically possessing eternal dynamism and encompassing all possibilities. From this "Pure Being," we can logically distinguish potentiality units carrying the most fundamental "relational propensities"—"Primordial Vectors (PVs)."

Order and "laws" are not a priori "legislation," but "Commonality References (CRs)" self-organizedly emerging from the relational network. The first structure of the cosmos is "ignited" from the potentiality of "Pure Being" through a non-teleological, probabilistic process named the "Commonality Self-Activation Mechanism (CSAM)." These emergent CRs, like stable sets of "relational rules," define and shape the "reality" within their sphere of influence.

The "things" we experience are not independent entities, but "Relative Entities (REs)" devoid of intrinsic attributes. Constituting the "Relational Reality" of the cosmos are innumerable activated, dynamic "Dependency Paths (DPs)." Any "thing" we perceive—from a particle to a galaxy—is merely a transient phenomenal pattern stably manifested from these DPs networks under the hierarchical reference and "projection" of a specific CR; all its specifications originate from relations.

The basic "units of existence" in the cosmos are "Relatedness Systems (RSs)." Any structure possessing holism, identity, and boundaries (such as an atom, a cell, a person, a society) is a dynamic, open "Relatedness System" defined by its core "Central Commonality Reference (CRO)." Complex RSs can internally differentiate into functionally specialized "Relatedness Levels (RLs)" defined by "Specific Commonality References (SROs)."
The essence of existence is eternal "evolution," its driving force originating from the unavoidable intrinsic "Existence-Evolution Paradox (EEP)." This is the eternal tension within any finite RS between its intrinsic "transformative propensity" (evolutionary rate, v) and its need to maintain its "existence basis" (the stability T_CR of its core CR). This paradox, under the regulation of the "Global Bidirectional Self-Organization (BSO) mechanism" that permeates all things, drives an RS along its unique "Existence-Evolution Axis (EEA)" to experience periodic, fundamental "displacements" of its core CR—that is, the continuous reconstruction of its "existence basis."

Such a cosmic tableau centered on "relation" is undoubtedly subversive; it requires us to undertake a thorough rewriting of our conception of "reality." It directly responds to the profound predicaments of traditional entity-based theories when facing fundamental problems such as quantum entanglement, the emergence of life, and the nature of consciousness, which I mentioned at the beginning of the Foreword. By providing an entirely new, intrinsically self-consistent set of logical tools (such as "Commonality Reference," "Existence-Evolution Paradox," "Existence-Evolution Axis," etc.), *Relatedness Theory* enables us to re-examine, in an unprecedented way, those fundamental questions that have perplexed humanity for millennia, and to find for them a unified explanatory framework based on relation and evolution. This is no longer merely a mending or improvement of existing theories, but a thorough Ontological Turn, a fundamental reconstruction of the basic grammar by which we think about the world.

Relatedness Theory thus invites all of us, explorers harboring the deepest curiosity about this world, to embark on a most thorough expedition of thought paradigms. It requires us to temporarily relinquish our obsession with "solid ground" and bravely attempt to learn to navigate in the eternally flowing "ocean of possibilities" constituted by "relation" itself. It seeks to unveil an existential picture that may initially seem somewhat unsettling, but after deep contemplation, might bring us

closer to the truth of the cosmos and better accommodate our own position: a cosmos with no fixed, unchanging protagonist, only eternally flowing interrelations; no presupposed ultimate purpose, only an unceasing immanent drive; no absolute objective coordinates, only relatively emergent frames of reference."

This book aims to systematically expound the complete theoretical system of *Relatedness Theory*. We will begin with its profound philosophical foundations, construct its unique logical framework and core conceptual system, and delve deeply into its intrinsic dynamic mechanisms and its subversive reconstruction of fundamental categories such as time, causality, and law. Subsequently, we will apply this theoretical framework to provide entirely new philosophical interpretations for a series of classic philosophical conundrums and fundamental life-pervading questions such as "Who am I?", "What is existence?", "Why does existence exist?", "The origin and evolution of the cosmos," and even famous paradoxes like the "Ship of Theseus," in order to demonstrate the unique explanatory and integrative power of *Relatedness Theory*.

This is undoubtedly a highly challenging intellectual adventure. It requires us to question those long-entrenched conceptions of reality, and to embrace a complex way of thinking that is relational, processual, fraught with internal contradictions, and characterized by hierarchical emergence. However, faced with the predicaments of existing paradigms, and the cryptic messages of profound relatedness and dynamic generation continuously transmitted from the depths of the cosmos, we perhaps have no choice but to summon our courage and, together with *Relatedness Theory*, step into this "abyss of existence"—woven from relations, constantly self-creating and reshaping under the drive of internal tensions—to seek a truer, more unified existential picture that can also bestow meaning and position upon ourselves.

"This, then, is the invitation of *Relatedness Theory*—it looks forward to an unexpected encounter with every unremitting seeker, within that commonly witnessed web of relations, upon the resplendent star-chart of life and wisdom, in that unimaginable, unbearable, and helpless solitude, and also on that equally long road of inquiry."

(All core concepts and fundamental assertions in this theory possess their hypothetical and tentative nature, as well as the perspectival relativity inherent in any theoretical framework. Among

them, core constructs such as "Commonality Reference" (CR), "Primordial Vectors" (PVs), "Dependency Paths" (DPs), "Global Bidirectional Self-Organization" (BSO), and "Existence-Evolution Paradox" (EEP), when used to interpret the myriad phenomena of the cosmos, all face a severe risk of overgeneralization; the explanation for the "Commonality Self-Activation Mechanism" (CSAM) lacks robust logical support, and its derivations are strained. Furthermore, as this theory reconstructs everything with "relation" as its logical cornerstone, its systemic interconnectedness also generates a miasma of circular definitions in the derivation of its core concepts. Moreover, due to the varying completion times of different chapters and the sheer volume of the work, inconsistencies in definitions may exist throughout the book (the definitions provided in chapters offering systematic elucidation should be taken as authoritative). And the theory's high degree of abstraction and complexity poses a direct challenge to mathematical-logical formalization and independent empirical verification; as for finding phenomenological fingerprints in the observable universe and building a bridge to empirical reality, the path is arduous and far from forming a system of predictions amenable to experimental testing.（RT v1.1）

Volume I: The Philosophical Ontology of Relatedness Theory

Chapter 1: The Ontological Cornerstone—Pure Being: The Ultimate Background for the Scrutiny of the Possibility of All Possibilities

1.1 Introduction: From the Boundaries of the Cosmos to the Abyss of Existence—Why is "Pure Being" Necessary?

The entire theoretical system of *Relatedness Theory* (RT), in its ambition, aims not merely to explain the origin and operation of this cosmos we inhabit, but to confront a more fundamental, and indeed more awesome, question: "Existence, why does it exist at all?" This inquiry, in itself, already transcends the boundaries of any particular "cosmos." For once we frame our starting point of thought within "the cosmos," then questions such as "What was before the cosmos?", "What is outside the cosmos?", and "What enables this cosmos of ours to be as it is and not some other possible form?" will follow one after another, leading us into a logical predicament of infinite regress, or compelling us to be satisfied with some unexamined assumption of a "First Cause." This quest for fundamental cause, along with a profound reflection on the limitations of existing cognitive frameworks, constitutes the core driving force behind the proposal of *Relatedness Theory*. As stated in its Foreword, it originates from an inner drive to "re-'witness' that mysterious and unfathomable cosmos... with the most thorough honesty." This "thorough honesty" first requires us to acknowledge that the mystery and unfathomability of existence itself, in its profundity, perhaps far exceed the sum total of human understanding of specific things and of this particular cosmos of ours to date, and even far exceed all that is known or may in the future be brought into the ambit of the "known." Therefore, to truly confront this ultimate question—"Why does existence exist?"—*Relatedness Theory* must posit a most primordial background for scrutiny, one that transcends any specific cosmos, any particular spatiotemporal structure, and any known or unknown laws. This background, in *Relatedness Theory*, is termed Pure Being. It is not an object that can be simply defined or easily grasped, but rather a profound insight concerning the ultimate background of existence, an insight that

needs to be indirectly indicated and continually approached through the unfolding of the entire theory of *Relatedness Theory*. What follows is a fundamental exposition of this core concept of "Pure Being."

1.2 "Pure Being": The Unifying Horizon of Infinite Potentiality and the Ultimate Background of Existence

The concept of Pure Being appears exceptionally grand and profound because it attempts to "encompass" all possible spacetimes and all possible things within a single unifying horizon. When we speak of "events before the birth of the cosmos" or "events after the heat death of the cosmos," and even all scenarios that transcend imagination yet might be proposed, Pure Being incorporates them with ease, seemingly rendering any "sudden occurrence" as nothing more than a "performance" of potentiality, devoid of suspense. This direct confrontation with boundlessness, however, simultaneously brings forth profound difficulties: within a concept where there is no before or after, no inside or outside, what then is "occurrence," what is "structure," what is "order"?

We often face the so-called "First Cause" problem: the infinite regress of causality either pierces some endpoint or brings thought to a standstill in some kind of loop. Yet, the insight Pure Being offers us is this—perhaps there is no "ultimate starting point" at all, let alone "what lies beyond the starting point." Pure Being means: whatever can be conceived, whatever can be made possible, is already latently contained within it. What is astonishing is that this is not equivalent to "dead stillness"; on the contrary, it places all dynamics and chaos—including what we call spacetime, order, and even confusion—within a vaster "frame," and then serenely observes them as they become manifested or veiled under some form of division or focus. It is important to note that "veiling" itself is also a mode of manifestation, just as some possibilities are temporarily hidden while others are activated.

In essence, if we do not propose Pure Being as that boundless backdrop, we will become utterly mired in the cul-de-sac of "whence did it come" when addressing questions like "why does existence exist?" For any specific cosmic framework or theoretical construct is insufficient to answer "What came before that?", "What was prior to it?", "What lies beyond it?"; only by returning to a background no longer constrained by any spacetime, boundary, or logical law can the infinite questioning be resolved, thereby allowing "the emergence of existence" to be accommodated to a greater conceptual extent.

This also means that Pure Being allows us to see: so-called "something suddenly popping into existence" or "creation ex nihilo" is not a problem

within its logic—because for Pure Being, there is neither birth nor death, neither before nor after; any questioning of "sequential order" is merely a limited perspective based on our specific spacetime. Yet, if we are to deal with "how specific spatiotemporal order arises" or "why all things evolve into certain forms," we must inevitably proceed to the process of "activating or delimiting certain Dependency Paths from Pure Being," so as to "highlight" a specific system within infinite potentiality, thereby obtaining a perceivable, operable world.

In this realm, the "stasis" of Pure Being itself (more accurately, its state of completeness encompassing all possibilities, transcending our usual dichotomy of motion and stillness) and the "dynamism" we observe at the level of "existence" (i.e., the manifested, structured level) appear contradictory. Yet, perhaps this is merely our inability to distinguish between the absolute panorama and a specific focus. When we stand within the panorama of Pure Being, all possibilities lie equally dormant, neither increasing nor decreasing, hardly describable as any unfolding or process. But when we gaze upon a Commonality Reference's specific selection of Dependency Paths, we experience "dynamic evolution": new structures appear, old organizations disintegrate, seemingly changing rapidly within "time" or "process." Thus, Pure Being as an absolute, infinite totality of potentiality, and the concrete, finite Relatedness Systems emerging from it, form a stark reflection at the ontological level, yet also constitute an inseparable dependency; on the one hand, Pure Being neither increases nor decreases—on the other hand, individual systems can undergo all sorts of spatiotemporal upheavals of birth and death, flourishing and decline.

Therefore, "to posit Pure Being, to understand Pure Being," also means that when contemplating the ultimate questions of what "existence," "spacetime," and "order" are, we allow ourselves to leap beyond all established conceptual boundaries, placing our thoughts on "birth and death," "change," "chaos," and even "infinite causal regress" into a broader dimension. Perhaps this is both a transcendence of limited perspectives and a test imposed upon all our theories (including *Relatedness Theory* itself): only a theory that can maintain self-consistency even under such an extremely open "background" can be deemed capable of facing the "deepest" ontological, epistemological, and methodological challenges.

1.3 The Ontological Status and Core Nature of "Pure Being"

1.3.1 The Sole, Absolute Ontological Cornerstone: The Existence of Possibility Its elf

Within the entire theoretical architecture of *Relatedness Theory*, "Pure Being" occupies the supreme ontological position. It is not one among many possible foundations but is designated as the cosmos's sole, irreducible ultimate reality. This means that when we inquire into the ultimate source of existence, when we attempt to understand the most fundamental ground for the occurrence of all phenomena, *Relatedness Theory* directs us to "Pure Being"—this all-encompassing potentiality totality that transcends all specific forms. It is not a "thing" that can be discussed alongside other existents, but rather that ultimate, all-embracing "background" or "domain" wherein all "things" and all "relations" become possible.

The fundamentality of "Pure Being" lies in its being the ultimate ground that "makes all possibility possible." The core meaning of this seemingly abstract expression is that "Pure Being" is not merely some kind of container "filled with possibilities," but rather the ontological commitment for the very concept of "possibility" to be established and to exist. In other words, if we are to contemplate any possible structure, possible order, possible law, or even possible cosmos, the initial and ultimate "footing" for these "possibilities" to be conceived, discussed, and even, under certain conditions, actualized, is "Pure Being." Therefore, *Relatedness Theory* posits that "Pure Being" is the very manifestation of "the existence of possibility itself." It is not "being" in the sense opposed to "non-being," but rather a "Being" that transcends this dichotomy, serving as the potentiality source of all "what can be" and "how it can be." Any "possibility" we can imagine, or even cannot imagine, is already latently contained within the infinite richness of "Pure Being."

Based on this, the positing of "Pure Being" constitutes the logical and ontological premise for all subsequent core concepts of *Relatedness Theory* to be introduced, defined, and understood. Whether it is the "Primordial Vectors (PVs)" as the initial distinguishable units of "Pure Being's" potentiality, "Pure Nothingness (PN)" as the relative unmanifested state of "Pure Being," or the "Commonality References (CRs)," the "Dependency Path (DPs)" network, and ultimately the "Relative Entities (REs)" manifesting as phenomena and the "Relatedness

Systems (RSs)" they constitute, which self-organize and emerge from "Pure Being's" potentiality—the meaning of all these concepts and their roles in the theoretical system must ultimately be traced back to "Pure Being" as the sole, absolute ontological cornerstone. Without "Pure Being" as the logical starting point and existential background encompassing all possibilities, the entire theoretical edifice of *Relatedness Theory* could not be established. It is the grandest and sole ontological commitment and point of departure that *Relatedness Theory* must establish when facing the infinite complexity and unfathomability of cosmic existence with an attitude of "absolute honesty."

1.3.2 The Unifying Nature and Undifferentiated State of Infinite Potentiality: Encompassing Everything and Transcending Specification

One of the core characteristics of "Pure Being," as the sole ontological cornerstone of *Relatedness Theory*, is the unifying nature of its infinite potentiality. This means "Pure Being" is not merely a vacuous background but, as an all-encompassing unifying horizon, latently contains all possible structures, all possible modes of order, and all possible directionalities or propensities. As *Relatedness Theory* points out in its core discourse: "The concept of Pure Being appears exceptionally grand and profound because it attempts to 'encompass' all possible spacetimes and all possible things within a single unifying horizon." Furthermore, "Pure Being means: whatever can be conceived, whatever can be made possible, is already latently contained within it." This encompassment is thorough; the possibility for any specific structure A, order B, or directionality C to become reality originates from the corresponding potentiality already existing within "Pure Being."

However, this infinite encompassment must be understood in dialectical unity with another core characteristic of "Pure Being"—its complete undifferentiated state or lack of specification. Here, "undifferentiated" or "unspecified" absolutely does not mean "empty of everything" or that "Pure Being" internally lacks any potentiality for structure, order, or directionality. If that were so, it could not be the source of all things. Its precise meaning is: before any specific structure, order, or directionality is "activated" or "manifested" through subsequent mechanisms (such as the Commonality Self-Activation Mechanism, CSAM, the emergence of Commonality References, CRs, etc.), "Pure Being," in its primordial state, does not presuppose, favor, or solidify into any particular, manifested form. All possibilities coexist within "Pure

Being" in an equal, unactivated, interpenetrating manner, transcending any single, completed specification.

We can use an imperfect analogy to illustrate: imagine "Pure Being" as a vat of "ink of potentiality" containing all possible colors (with an infinitely fine spectrum). This vat latently possesses the possibility of forming red, yellow, blue, and all infinite transitional colors between them. However, before any specific color is "extracted" or "focused" from it, the vat itself presents as a "colorless color" or "potentiality of all colors" that transcends any single color—it is not red, yellow, or blue; it exists in a "pre-color," "supra-color," undifferentiated state. Only when some mechanism acts upon it can specific color potentialities manifest.

Therefore, the core of "unspecifiedness" or "transcendence of differentiation" in *Relatedness Theory's* "Pure Being" is that it does not presuppose any particular, manifested structure, order, or directionality, but rather serves as an infinitely rich totality of potentiality where all possibilities latently coexist equally, not yet limited by any specific reality. This understanding is fundamentally different from certain "simple" initial states in traditional cosmology based on specific physical models (such as a high-entropy uniform state in thermodynamics or a particular state of the quantum vacuum). The undifferentiated nature of "Pure Being" is a more fundamental, ontological-level completeness of potentiality, transcending any specific physical form description.

1.3.3 The Intrinsic Dynamism of "Pure Being": Eternal Random Fluctuations Originating from its Infinite, Undifferentiated Essence

The infinite potentiality and complete undifferentiatedness of "Pure Being" do not point to a dead, eternally unchanging stasis. On the contrary, *Relatedness Theory* profoundly indicates that "Pure Being" possesses an immanent eternal dynamism. This dynamism is the fundamental reason why, as an infinite and undifferentiated totality of potentiality, it logically cannot remain in absolute stasis, and it is also the most primordial and universal source of all change and structural generation in the cosmos.

1.3.3.1 The Infinite, Undifferentiated Essence of "Pure Being" and its Logical Non-Static Nature:

"Pure Being," as the sole ontological cornerstone encompassing all possibilities, has infinity as its core characteristic. An infinitely rich totality of potentiality, devoid of any presupposed structure or specification, logically cannot "solidify" into some absolute, eternal stasis.

Any specific "stasis" would imply a "limitation" or "freezing" of its infinite possibilities, which contradicts its essence of "encompassing all possibilities." Therefore, the non-static nature of "Pure Being" is a direct logical inference from its ontological definition.

1.3.3.2 Eternal Random Fluctuations: The Most Basic and Universal Manifestation of "Pure Being's" Non-Static Nature:

This intrinsic non-static nature, originating from the infinite, undifferentiated essence of "Pure Being," when lacking any specific structure, rule, or presupposed directional guidance (because "Pure Being" in its primordial state is completely undifferentiated), manifests most primordially and universally as eternal, minute, non-directional random fluctuations.

These fluctuations are not extraneous "noise" or some perturbation that needs to be "calmed," but are the direct, immanent expression of "Pure Being's" dynamic nature. They are the necessary manifestation of "Pure Being's" inability to "solidify" into absolute stasis, proof that its infinite possibilities are, at any "moment" (if this term is meaningful at the level of "Pure Being"), in a state of potential "activity" or "variability."

1.3.3.3 "Primordial Vectors (PVs)" and their "Inherent Necessary Propensity" as the Concretization of "Pure Being's" Dynamic Potentiality and the Basis for Interaction:

Against this eternally dynamic potentiality background of "Pure Being," "Primordial Vectors (PVs)" are conceived and introduced as potentiality units logically distinguishable from "Pure Being," carrying specific "relational propensities."

"Pure Being" as the matrix of possibility for the existence of PVs: The infinite potentiality of "Pure Being" is concretely manifested in its containing the most primordial potential forms of all latent PVs. The very possibility of PVs' existence is rooted in the infinite richness of "Pure Being."

The "inherent necessary propensity" of PVs as a specific determination of "Pure Being's" potentiality: According to the definition of PVs in Chapter 2 of *Relatedness Theory*, for any PV to be more than a mere logical concept indistinguishable from other possibilities, and to be a potentiality capable of participating in subsequent relational generation and structural evolution, it must intrinsically possess a certain "inherent necessary propensity." This "inherent necessary propensity" is its unique

"way or potentiality of existence and interaction," the intrinsic ground for its ability to be activated and to engage in specific types of interaction with other PVs or with the fluctuations of "Pure Being." It can be said that the "inherent necessary propensity" of PVs is an initial, local, distinguishable "specification" or "behavioral potential" of "Pure Being's" infinite potentiality. A "possibility unit" completely lacking "propensity" would be absolutely inert, unable to "emerge" from the dynamic background of "Pure Being" and participate in interaction, which contradicts the premise of "Pure Being" as the "source of all possibilities" and possessing immanent dynamism.

1.3.3.4 Eternal Random Fluctuations as the Initial "Perturbation" and Possibility Basis for All Change:

These eternal random fluctuations of "Pure Being" constitute the most primordial, most fundamental source of perturbation and possibility basis for the subsequent initiation of all change, structural generation (e.g., through the "Commonality Self-Activation Mechanism" CSAM, whose operation itself depends on these fluctuations as a trigger), and the "Global Bidirectional Self-Organization (BSO) mechanism" (whose initial PV interactions also occur against this fluctuating background) in the cosmos. It ensures that the potentiality of "Pure Being" will never completely "subside" but is always ready (when specific conditions are met) to transform into structured "Relational Reality."

1.3.4 Transcendence: The Fundamental Surpassing of Specific Forms, Spacetime, Causality, and Binary Oppositions

The ontological status of "Pure Being" lies not only in its being the sole cornerstone and source of potentiality but also in its profound transcendence. This transcendence is manifested in its surpassing all concrete, manifested forms of existence and the conceptual categories we typically use to understand and frame the world.

"Pure Being" transcends any specific material, energy, spatiotemporal structure, or form of consciousness. All these concrete existents that we experience or theoretically conceive are merely relative, transient modes activated and manifested under specific conditions from the infinite potentiality of "Pure Being." They are "performances" of "Pure Being," not "Pure Being" itself. Therefore, "Pure Being" is the more fundamental background for their possibility, but it is not equivalent to any one of them or their sum.

"Pure Being" transcends our linear conception of time and local causal chains formed from the experience of the manifested world. At the level of "Pure Being," there is "neither before nor after, neither inside nor outside"; the traditional inquiry into a "First Cause" loses its meaning here. Our perception of temporal sequence and understanding of causal relations are frames of reference that become established only after the emergence of specific "Commonality References (CRs)" within a relative, structured "Relational Reality," and are not attributes of "Pure Being" itself.

"Pure Being" transcends the simple binary division of "being and non-being" (specifically, in opposition to "absolute nothingness" in traditional philosophy). *Relatedness Theory* does not posit an "absolute nothingness" ontologically opposed to "Pure Being." "Pure Being," as the unification of all possibilities, itself dissolves the premise of such an opposition. It is a most primordial, ineliminable "Is," and this "Is" is "the existence of possibility itself." "Pure Nothingness," which will be expounded in subsequent chapters, is the unmanifested state of "Pure Being" relative to a specific CR, not the antithesis of "Pure Being."

Finally, "Pure Being" transcends any presupposed structure and order. It is "not a structure" itself, but the completely undifferentiated potentiality field from which all possible structures and orders can emerge. The core meaning of its "complete undifferentiatedness" lies precisely here: in the initial state of "Pure Being," there are no inherent, favored structural patterns or rules of order. All structure and order are emergent results of subsequent self-organizing processes.

This manifold transcendence enables "Pure Being" to truly become the grandest, most fundamental, and most inclusive ontological horizon for *Relatedness Theory's* scrutiny of all existence (including the origin of the cosmos, the nature of laws, the mystery of consciousness, etc.).

1.4 The Crucial Role and Influence of "Pure Being" in the Genesis and Evolution of the Cosmos in Relatedness Theory

As the sole ontological cornerstone and the unifying horizon of infinite potentiality in *Relatedness Theory*, the significance of "Pure Being" lies not only in providing the most fundamental background for scrutinizing the ultimate inquiry, "Why does existence exist?", but more importantly, in the indispensable key roles it plays and the fundamental influences it exerts throughout the entire process of the cosmos's genesis and evolution from potentiality to manifestation, from simplicity to complexity.

1.4.1 The Ultimate Source of All "Relational Possibilities" and "Rule Potentialities"

The foundation for all things in the cosmos to be structured and to exhibit orderly operation lies in the establishment of "relations" and the formation of "rules." *Relatedness Theory* posits that "Pure Being" is precisely the ultimate source of all these "relational possibilities" and "rule potentialities."

"Pure Being," through the primordial potential forms of its contained "Primordial Vectors (PVs)"—its logical distinguishable units—provides the most basic "elements" or "degrees of freedom" for the establishment of all possible relations in the cosmos. The potential state of each PV carries the most fundamental "inherent necessary propensity," i.e., its unique "way or potentiality of existence and interaction." These "propensities" are not disorderly but contain the latent "grammatical rules" for forming specific "relational patterns."

When these PVs (as manifestations of "Pure Being's" potentiality), triggered by the eternal intrinsic fluctuations of "Pure Being," undergo primordial interaction through the "Global Bidirectional Self-Organization (BSO) mechanism" (this being the "logical genesis" originating from the "bidirectional potential infinite extensibility" and "inherent necessary propensity" of PVs and their interaction), their "interactive logic" itself provides the most fundamental basis of possibility for the formation of all potential "commonality rules" in the cosmos. The "inherent necessary propensities" of PVs, in the universal interaction of BSO, will gradually screen and stabilize certain "interaction modes" or "associative combinations," which constitute the

initial "selection preference" (where "selection preference" here refers to patterns that are dynamically easier to form and maintain, not a teleological choice) for the subsequent emergence of specific "laws" (as manifestations of particular CRs).

Therefore, "Pure Being" is not merely a passive "container of possibilities." Through its intrinsic constitutive potentiality (the "inherent necessary propensity" of PVs) and fundamental operational logic (the starting point of BSO), it actively (where "actively" here refers to what is necessarily entailed by its intrinsic characteristics, not a conscious level of activity) provides the ultimate, indispensable source for the establishment of the cosmic "relational grammar" and the gestation of all "rule potentialities."

1.4.2 Dialectical Unity with "Pure Nothingness": Defining the Manifested and Unmanifested, Providing a Reserve of Potentiality

The relationship between the infinity of "Pure Being" and the finitude of "manifested existence" is dialectically unified through the concept of "Pure Nothingness (PN)." "Pure Being" and "Pure Nothingness" together constitute a complete description of the overall possibilities of the cosmos and provide a reserve of potentiality for its continuous innovation.

Relatedness Theory explicitly states that "Pure Being" is the absolute ontological reference by which "Pure Nothingness" is defined. "Pure Nothingness" is not some "absolute void" existing independently of "Pure Being." Rather, it is that portion of infinite potentiality within "Pure Being" which, relative to any specific, manifested "Commonality Reference (CR)," remains unactivated by that CR's "definitional power," unorganized, and unincorporated into its current manifested structure. Therefore, "Pure Being" represents the entirety of "possibility," while "Pure Nothingness" is that part of this entirety of possibilities which, relative to a particular "focus of manifestation," is "unrealized" or "veiled."

In this dialectical relationship, "Pure Being" (through its form as relative "Pure Nothingness") plays the role of an infinite "reservoir of possibilities" for the continuous innovation and emergence of novelty in the cosmos. When a "Relatedness System (RS)," driven by its intrinsic "Existence-Evolution Paradox (EEP)," undergoes a reconstruction of its core CR (i.e., a "transition node" on the EEA), or when new CSAM

processes are triggered under specific conditions, the "raw materials" and "possibility space" from which new structures, new rules, and new "existential paradigms" can be explored and emerge, ultimately all originate from this background of "Pure Nothingness" relative to the current manifested structure—that is, the vast potentiality of "Pure Being" that has not yet been specified in a particular way.

1.4.3 The Ultimate Background for "Infinite Potentiality Pressure (IPP)" and the Source of Potentiality for Cosmic Evolution

The infinity of "Pure Being" not only provides the possibility for the initial generation of the cosmos but also exerts profound, background influences on the continuous evolution of all its subsequent manifested structures, especially as the ultimate background for "Infinite Potentiality Pressure (IPP)," one of the core sources of "evolutionary rate (v)."

The infinity of "Pure Being," through its interface with relative "Pure Nothingness," indirectly constitutes the "Infinite Potentiality Pressure (IPP)" acting upon any finite "Relatedness System (RS)." IPP refers to the ontological-level perturbation and "possibility permeation" from this interface that a finite RS inevitably endures due to its continuous contact with the background of "Pure Nothingness," which represents infinite unrealized possibilities. This pressure originates from the infinite richness of "Pure Being" and its eternal intrinsic random fluctuations, and is a manifestation of the eternal interface tension between finite manifested structures and the infinite, dynamically charged potentiality background. IPP is one of the four ontological roots driving the intrinsic "evolutionary rate (v)" of an RS, ensuring that no RS can be completely isolated from its infinite potentiality background but must continuously engage in structural "responses" and adjustments.

Meanwhile, whether it is the initial "Commonality Self-Activation Mechanism (CSAM)" of the cosmos being "ignited" to bring forth the first CR, or any "Relatedness System (RS)" undergoing a fundamental reconstruction of its core CR on its "Existence-Evolution Axis (EEA)" (i.e., a "transition node"), all the new possibilities, new combinations of "relational propensities," and new "structural raw materials" required, ultimately and most fundamentally originate from the inexhaustible infinite potentiality of "Pure Being."

1.4.4 Fundamental Foundational Role in Cosmic "Genesis"

"Pure Being," as the sole ontological cornerstone, plays an indispensable, fundamental foundational role in the "genesis" of the cosmos (referring to the relative starting point of our observable universe).

Relatedness Theory posits that the "genesis" of the cosmos (e.g., the emergence of a specific cosmological core CR_Cosmos that defines the fundamental laws of our observable universe) does not arise from "absolute nothingness" in the traditional sense. Instead, it occurs probabilistically and non-teleologically against the background of "Pure Being"—this infinite potentiality—through its intrinsic self-organizing processes such as the "Commonality Self-Activation Mechanism (CSAM)" and the "Global Bidirectional Self-Organization (BSO) mechanism." "Pure Being" provides all the "possibility raw materials," the initial "dynamic perturbations" (its intrinsic fluctuations), and the latent "relational rules" (the "inherent necessary propensities" of PVs) for this (or any possible) "genesis" event. It endows the process of "creation ex nihilo" (more accurately, "potentiality generating structure") with logical possibility and ontological grounding.

1.4.5 The Ontological Background for the Fundamental Transformation ("Displacement") of the Rule System Embodied by a Commonality Reference (CR) and for the Existence-Evolution Axis (EEA): Continuous Reconstruction within the Possibility Space of "Pure Being"

When the core "Commonality Reference (CRO)" of a "Relatedness System (RS)"—that is, the stable relational structural pattern embodying the RS's "existence basis" and fundamental operational rules—undergoes a fundamental transformation on its "Existence-Evolution Axis (EEA)" (termed "displacement" in *Relatedness Theory*, which refers not to the physical movement of an "entity," but to the invalidation of the rule system and organizational principles represented by the old CR, and the emergence and replacement by a new CR' embodying a different rule system and organizational principles), the ultimate ontological background for this profound evolutionary process and the final source of possibility for the emergence of new rules and structures must be traced back and anchored to the infinite potentiality of "Pure Being," rather than merely to some relative, manifested frame of reference.

A "transition node" on the EEA is essentially a process within the infinite "possibility space" of "Pure Being," where the system of "commonality rules" and organizational mode embodied by an RS's core CR disintegrates due to the intensification of its intrinsic "Existence-Evolution Paradox (EEP)," and, through the operation of the "Global Bidirectional Self-Organization (BSO) mechanism" and possibly a reactivated "Commonality Self-Activation Mechanism (CSAM)," a new CR' is probabilistically explored and "condensed" that can temporarily manage the current EEP equilibrium. As expounded in subsequent chapters of *Relatedness Theory* (e.g., Chapter 13), this abstract "CR possibility space" is constituted by all potential stable relational structural patterns embodying different "commonality rules" that can emerge from "Pure Being" via CSAM and BSO mechanisms.

In the process of fundamental reconstruction of the rule system embodied by the core CR (i.e., its "displacement"), the "definitional power" of the old CR as a frame of reference collapses, and the system's interaction with its relative "Pure Nothingness" (as the unmanifested part of "Pure Being" relative to the old CR) becomes more direct and intense. It is precisely the infinite potentiality of "Pure Being" that provides the system with the rich "raw materials" and "seedbed of possibilities" for re-examining and probabilistically "activating" those "inherent necessary propensities" of "Primordial Vectors (PVs)" previously "veiled" by the old CR's rules, and for exploring and weaving entirely new, potential "Dependency Path (DPs)" connection patterns.

The emergence of a new CR' is thus the probabilistic "condensation," from this vast "possibility space" of "Pure Being" through BSO's self-organizing exploration and (at specific stages) CSAM's probabilistic "ignition," of a new stable relational structural pattern embodying entirely new "commonality rules" that can temporarily alleviate the current "Existence-Evolution Paradox (EEP)." Therefore, every fundamental transformation ("displacement") of the rule system embodied by the core CR and every "progression" of the EEA is a process wherein the DPs network constituting the basis of the RS is organized and manifested in new ways within the potentiality of "Pure Being"; it is a profound reshaping and redefinition of the RS's "existence basis" against the ultimate background of "Pure Being."

"Pure Being" is not only the starting point from which cosmic structure initially emerges from potentiality (genesis) but also the eternal stage and infinite source of potentiality for all subsequent evolution,

transformation, and the continuous reconstruction of "commonality rule" systems (CR "displacement").

1.4.6 The Ultimate Test Background for the Logical Self-Consistency and Openness of

Finally, the positing of "Pure Being" also has fundamental guiding significance and testing utility for the construction and development of the theoretical system of *Relatedness Theory* itself.

The entire construction of *Relatedness Theory's* theoretical system—the introduction, definition, and interpretation of the interrelations of all its core concepts (from PVs to EEA), as well as the operational principles of all its dynamic mechanisms (such as CSAM, BSO, EEP)—must ultimately be brought back to "Pure Being," this grandest, most open, most incompletely specifiable ontological background, for scrutiny, in order to test its internal logical self-consistency, the completeness of its explanations, and its openness to future challenges and further development.

Any theory attempting a fundamental explanation of the origin, structure, operation, and evolution of the cosmos, if its ultimate ontological posit cannot encompass the kind of infinite possibility, intrinsic dynamism, and transcendence of specific specification represented by "Pure Being," then in the view of *Relatedness Theory*, it may be insufficiently thorough or face internal contradictions. Subjecting its own theory to the test of this ultimate background of "Pure Being" is a manifestation of *Relatedness Theory's* endeavor to achieve the highest degree of philosophical depth and theoretical openness.

Through these key roles and influences, "Pure Being" is not only the logical starting point of *Relatedness Theory's* cosmic picture but also the eternal source of potentiality, basis of change, and ultimate referential background permeating its entire process of genesis and evolution.

1.5 Chapter Summary: Departing from "Pure Being"—The Logical and Ontological Origin Point of Relatedness Theory

This chapter has thoroughly elucidated "Pure Being" as the logical starting point and the sole, absolute ontological cornerstone of the entire theoretical system of *Relatedness Theory*. We have reiterated that the positing of "Pure Being" is the grandest and sole background for scrutiny that *Relatedness Theory* must establish in order to directly confront the ultimate inquiry, "Why does existence exist?", an inquiry that transcends any specific cosmological model. It is not an object that can be simply defined or empirically falsified, but rather an infinite potentiality field, as the "possibility of all possibilities," that needs to be gradually approached and apprehended through the entire theoretical system.

The core nature of "Pure Being" lies in its being an infinitely rich, completely undifferentiated totality of potentiality. It latently encompasses all possible structures, orders, and directionalities, transcending all specific manifested forms, our experienced notions of spacetime and causality, and the simple binary opposition of "being and non-being" in traditional philosophy. Crucially, "Pure Being" is not a dead, static background; its intrinsic constitution (as a collection of infinite "inherent necessary propensities") makes it logically impossible for it to be in absolute stasis, inevitably manifesting as eternal, minute, non-directional random fluctuations. This intrinsic dynamism is a fundamental attribute of "Pure Being" and also the most primordial source of perturbation for all change and structural generation in the cosmos.

The positing of "Pure Being" and its manifested core characteristics—especially its being the ultimate source of all possibilities, its intrinsic eternal dynamism, and its transcendence of specific specification—lay a solid logical starting point and ontological foundation for the introduction of all subsequent core concepts and the elucidation of operational mechanisms in *Relatedness Theory*. From the "Primordial Vectors (PVs)" and their "inherent necessary propensities" as the initial distinguishable units of "Pure Being's" potentiality, to "Pure Nothingness (PN)" as the relative unmanifested state of "Pure Being," and then to the "Commonality Self-Activation Mechanism (CSAM)" as the "igniter" of structure, the "Commonality References (CRs)" as the fulcrums of emergent order, and the "Dependency Paths (DPs)" as the basic fabric of

Relational Reality—all these will unfold logically from this fundamental posit of "Pure Being."

Looking ahead, departing from this potentiality background of "Pure Being," which encompasses all possibilities and is full of intrinsic dynamism, *Relatedness Theory* will further reveal how "Relational Reality" spontaneously generates from the most primordial possibilities through a series of self-organizing, non-teleological mechanisms, becomes hierarchically structured, and, following its intrinsic "Existence-Evolution Paradox (EEP)" and the universal "Global Bidirectional Self-Organization (BSO) principle," continuously evolves and manifests the complex and orderly cosmos we experience. The theoretical audacity of *Relatedness Theory* lies precisely in its daring to place itself within such an infinitely open and incompletely specifiable background of "Pure Being" to scrutinize the entire process of existential genesis. This is both a response of "absolute honesty" to the limitations of human cognition and a firm commitment and theoretical courage in exploring the ultimate mysteries of cosmic existence. The theoretical journey departing from "Pure Being" aims to provide us with a new perspective, one closer to its origin, for understanding this relational, dynamically evolving world.

Chapter 2: Primordial Vectors (PVs)—Potential Distinguishable Units Carrying "Relational Propensity"

Introduction: From the Infinity of "Pure Being" to the Germination of Specific Relations—Seeking a Logical Ladder

In the previous chapter, we established "Pure Being" as the sole, all-encompassing, and intrinsically dynamic ontological foundation of *Relatedness Theory*. It transcends any specific structure, order, or directionality, serving as the ultimate background for the possibility of all existence. However, a core question immediately arises: if "Pure Being" is such an unspecified, unifying totality of potentiality, how does the structured existence of our experiential world, with its myriad variations and specific modes of relatedness, emerge from this primordial state?

To leap directly from the infinite potentiality of "Pure Being" to the concrete, activated network of "Dependency Paths (DPs)" and manifested "Relative Entities (REs)" seems to logically lack a necessary intermediary stage. We need a concept to explain:

1. How is the "distinguishability" of potentiality achieved? If "Pure Being" contains all possibilities, what enables these possibilities to be "identified" as distinct "units" that can then participate in subsequent combination and evolution?

2. How is the "specificity" of relations determined? If the order of the cosmos originates from relations, why do relations exhibit specific types (such as attraction, repulsion, logical entailment, etc.)? What provides the initial "direction" or "rules" for the establishment of relations?

3. What are the operational prerequisites for the "Commonality Self-Activation Mechanism (CSAM)"? CSAM relies on the matching of "commonality" to probabilistically activate relations. So, where do these "commonalities" initially reside? How are they "carried" and involved in the matching process?

To answer these questions, *Relatedness Theory* introduces the concept of "Primordial Vectors (PVs)." The proposal of this concept is not a flight of fancy but stems from the logical necessity of extracting, to the greatest extent of generalization, the most fundamental and indispensable property of "any possible structure or phenomenon." This most fundamental property, in the initial conception of *Relatedness Theory*, was identified as "propensity" (or "tendency").

2.1 The Proposal of "Primordial Propensity": Seeking the Most Generalized Specification After Pure Being and Before Relation

2.1.1 The Logical Necessity from "Pure Being" to Structured Existence: Why Can One Not Leap Directly from "Pure Being" to "Relation"?

"Pure Being," as the unifying horizon of all possibilities, does not itself presuppose any specific structure or order. It latently contains everything, but this "containment" is an undifferentiated, form-transcending totality. If we attempt to directly deduce concrete "Dependency Paths (DPs)" with specific connection patterns from this holistic "Pure Being," we face explanatory difficulties:

The dilemma of selection: Among infinite possibilities, why are *these* specific DPs activated, and not others? What mechanism makes certain potentiality combinations more prone to forming stable associations than others?

The source of rules: The establishment of DPs seems to follow certain "rules" (e.g., some things attract each other, while others repel). Where do these rules come from? If "Pure Being" itself carries no specification, then these rules become like water without a source.

The basis of diversity: If "Pure Being" is completely homogeneous (in its sense of transcending specific differentiation), how does the vast and complex diversity in the cosmos arise? What provides the initial "seeds" for diverse relational networks and structural patterns?

Therefore, between the infinite potentiality of "Pure Being" and concrete "Relational Reality," there must exist an intermediary level that carries the "distinguishability of potentiality" and the "latent rules of relation." This level is responsible for "translating" or "preparing" the unspecified potentiality of "Pure Being" into "units" with specific "interactive potential," which can then be selected and activated by subsequent mechanisms (such as CSAM).

2.1.2 "Propensity" as the Most Fundamental "Pre-Attribute": The Utmost Generalization Extracted from the Essential Nature of Any "Possible Existence"

Relatedness Theory posits that the core essence of this logical link between "Pure Being" and concrete relation lies in "Propensity" (or "Tendency"). This is not an arbitrary posit but the result of "extracting, to the utmost generalization, the essential nature of 'any possible structure or phenomenon'."

Let us reflect deeply: regardless of what kind of structure, phenomenon, or state of existence a "possibility" will ultimately manifest as—whether perceivable by us or not—if it is to be a "specific possibility" (and not completely identical to other possibilities, thus being logically indistinguishable within "Pure Being"), it must intrinsically possess some quality of *tending towards...*, being *capable of...*, *preferring to...*, or being *prone to...* engage in specific interactions with other possibilities or conditions. This most fundamental, intrinsic specification that defines "why a possibility is *this* possibility and not *that* one" is what we term "propensity."

"Propensity" is the most universal: Anything that can be conceived as "possibly existing," no matter how bizarre its form or how much it transcends our current understanding, as long as it is not a pure logical contradiction (and logical contradiction itself may be a judgment under a specific Commonality Reference, CR), it necessarily carries one or more "propensities." A "possibility unit" completely devoid of "propensity" would be absolutely inert, incapable of participating in any interaction, forming any relation, or being selected by any mechanism. This is essentially equivalent to it not possessing any potential to "become" anything else, which contradicts the premise of "Pure Being" as the "source of all possibilities."

"Propensity" is a "pre-attribute": It precedes all the concrete attributes we typically assign to things (such as mass, charge, size, shape, color, or even more abstract logical values or semantic content). For example, an electron possesses the "attribute" of interacting with other particles via electromagnetic force because it first possesses a more fundamental "propensity" to respond to electromagnetic fields and to engage in specific associations with other "propensity" carriers that are charged. "Propensity" is the deeper premise for these concrete attributes to emerge and be defined within subsequent relational networks.

"Propensity" connects "potentiality" with "action/relation": "Pure Being" is an ocean of potentiality. "Propensity" is the intrinsic drive or

directionality for potentiality to be, or possibly to be, transformed into concrete "relation establishment" or "structure formation." It is not action itself (that is the subsequent activation of DPs), nor is it the overall state of potentiality (that is "Pure Being"). Rather, it is that "vector-like quality" (taking its abstract sense of directionality) or "preferentiality" within potentiality that points towards specific actions or relational possibilities.

2.1.3 The Universality of "Propensity": Why Even Unimaginable States of Existence Must Possess "Propensity"

After the concept of "Pure Being" was established, and before other concepts of *Relatedness Theory* were generated, only "propensity" was determined (where "determined" here refers to its logical necessity as a theoretical deduction). Even states of existence or objects of existence that we cannot imagine or describe must possess simple or complex "propensities." This is the initial origin of the understanding of "Primordial Vectors," i.e., seeking the most universal substrate at the most generalized level.

This exposition reveals the core status and logical priority of the "propensity" concept in the early construction of *Relatedness Theory*. Its universality can be understood from the following perspectives:

As the minimum requirement for "distinguishability": If a "possibility unit" lacks even the most basic property of "tending to be this way rather than that," then it cannot be logically distinguished from other "possibility units" within the infinite potentiality of "Pure Being." It would be completely diffuse and unidentifiable. For the potentiality of "Pure Being" to be "refined" or "unitized" to participate in subsequent structural generation, these "units" must at least carry some minimal intrinsic specification that can distinguish them from other "units," and "propensity" is precisely this minimal specification.

As a prerequisite for "interactive possibility": Any form of "interaction" or "relation establishment" presupposes that the interacting parties possess some "propensity" to mutually "respond" or "influence." If everything were absolutely inert, no relation could occur. Therefore, "propensity" is a necessary condition for the cosmos to transition from the holistic state of "Pure Being" to a relational network state full of interactions.

Even "chaos" or "randomness" implies "propensity": We might think that "pure randomness" seems to lack "propensity." But from the

perspective of *Relatedness Theory*, even phenomena manifesting as "random fluctuations" might, at a deeper level, be the result of countless minute "propensities" interacting, canceling each other out, or superposing in complex ways. Or, "tending towards random change" is itself a specific (meta-)propensity. And "chaos" is not entirely without pattern; it may be a complex dynamic behavior that a system "tends to" exhibit under specific constraints.

"Propensity" is the basis for subsequent "commonality": The "Commonality Self-Activation Mechanism (CSAM)" relies on the matching of "commonality." And the smallest carrier of "commonality," or the micro-foundation for "commonality" to be established, is precisely these various "primordial propensities." When different "potentiality units" share similar "propensities" (e.g., all tend to form a certain symmetrical structure, or all tend to respond similarly to a certain type of "perturbation"), this constitutes their "potential commonality."

Therefore, "propensity" is considered so fundamental and universal by *Relatedness Theory* because it is the indispensable minimal specification and intrinsic drive for logically transitioning from the infinite potentiality of "Pure Being" to concrete, distinguishable, interactive "Relational Reality" that can ultimately form structured existence. It is a direct manifestation of the fact that the potentiality of "Pure Being" is not a dead stillness but is imbued with infinite vitality and evolutionary potential.

2.2 From "Primordial Propensity" to "Primordial Vector": The Evolution of the Name and its Theoretical Implications

In the early stages of *Relatedness Theory's* theoretical construction, the core concept intended to carry the differentiability of "Pure Being's" potentiality and the possibility of relational rules was initially conceived and named "Primordial Propensity." This name very intuitively captured its core essence—namely, the property that any "possible existence" must fundamentally possess, a tendency to manifest, interact, or relate in specific ways. It emphasized the transition from the completely unspecified state of "Pure Being" to potentiality units possessing some intrinsic "directionality" or "preferentiality."

However, with the deepening of theoretical exploration and the unremitting pursuit of expressive precision, the name of this core concept eventually evolved into "Primordial Vector (PVs)." This change in name was not an arbitrary textual adjustment but embodied deeper theoretical considerations and aspirations for the multiple theoretical functions of this concept.

2.2.1 The Intuitiveness and Potential Limitations of "Primordial Propensity"

The advantage of the name "Primordial Propensity" lies in its philosophical intuitiveness and direct revelation of the core essence. It clearly expresses that these potentiality units are not inert "points" but are filled with an intrinsic "tendency," serving as the initial "intentionality" (where "intentionality" here is taken in its broadest, non-conscious sense of directionality) for relations to germinate.

However, its potential limitations may lie in:

A somewhat singular descriptive dimension: The term "propensity" emphasizes more the quality of "tending towards...," but its expressive capacity might be somewhat insufficient in describing the complexity, diversity, and possible "intensity" or "combinability" of this "tendency."

Considerations for subsequent formalization: Although *Relatedness Theory* at the ontological level emphasizes the non-substantial and hypothetical nature of PVs, in the long-term prospects of theoretical development, if one hopes to establish some (even highly abstract and non-standard) correspondence with mathematical or physical language, a name with greater generality and potential structurality might be more advantageous.

2.2.2 Why Choose "Vector"?—Generality, Potential for Formalization, and Manifestation of "Directionality"

Renaming "Primordial Propensity" to "Primordial Vector" was primarily based on the following considerations, aiming to endow this core concept with richer theoretical connotations and broader interpretative space:

1. The generality and universality of "vector": In mathematics and physics, "vector" is an extremely fundamental and universal concept, typically used to describe quantities possessing both "magnitude" (or "intensity") and "direction." Although "Primordial Vectors" in *Relatedness Theory* are absolutely not geometric vectors in physical space, nor are they quantum state vectors in Hilbert space (this point will be repeatedly emphasized below to avoid misunderstanding), the connotations of "carrier of specification" and "unified description of multiple attributes" inherent in the term "vector" itself offer an advantage in generalizing the core functions of PVs. A PV, as a carrier of "propensity," may itself have a "propensity" with multiple dimensions or aspects (e.g., simultaneously tending to establish type-A relations with type-A PVs and type-B relations with type-B PVs, and the "intensity" or "probability" of these propensities may differ). The concept of "vector," at an abstract level, can better accommodate the possibility of such multiple specifications.

2. Manifesting the "directionality" and "distinguishability" of potentiality units: "Vector" naturally implies "direction" or "pointing." This is highly congruent with the connotation of PVs as carriers of "propensity," whose core lies in pointing towards specific types of relations or modes of interaction. Each PV is distinguished from other PVs by its unique "combination of propensities" (i.e., the unique "direction" and "components" of its "vector"), thereby providing a basis for the "distinguishability" of "Pure Being's" potentiality.

3. Providing a more amenable linguistic interface for potential formal description: Although PVs are ontologically hypothetical and non-substantial, in the long-term goals of *Relatedness Theory*, if it becomes necessary to construct more formal models to describe how potentiality

transforms into reality, the term "vector" more readily lends itself to association and interface with mathematical tools (such as the abstract application of linear algebra, tensor analysis, etc., even if non-standard). This does not mean equating PVs directly with mathematical vectors, but rather borrowing the structural descriptive potential of "vector."

4. Philosophical implication of the name evolution: "From intrinsic tendency to unit of specification": The name change from "Primordial Propensity" to "Primordial Vector" also reflects a subtle shift in the theoretical understanding of this core concept as it deepened: from initially focusing more on describing a diffuse, intrinsic "tendency" (Propensity), it evolved to emphasize more its role as a logically distinguishable "unit" (Vector as a unit of potential specification) carrying specific "potential for relational specification." "Vector" here is understood more as an abstract "bundle of specifications" or a carrier of a "spectrum of potentialities."

2.2.3 Clarifying the Abstract Meaning of "Vector": Not Physical Space Vectors, bu t "Units of Specification Potentiality"

Given the strong connotations of the term "vector" in physics and mathematics, *Relatedness Theory* must repeatedly emphasize that the "vector" in "Primordial Vectors (PVs)" here primarily takes on its philosophical and abstract meaning and must absolutely not be confused with the following concepts:

Not geometric vectors in physical space: PVs do not possess spatial position, length, or direction (in the sense of Euclidean or Minkowski space). "Pure Being" itself transcends spacetime, and PVs, as its potentiality units, naturally precede any specific spatial structure.

Not quantum state vectors in Hilbert space (at least not directly at the most fundamental ontological level): Although some mathematical-physical model explorations in *Relatedness Theory* might attempt to use the language of quantum information to describe Relational Reality, at the most basic ontological concept level of "Primordial Vector," it is primarily a philosophical posit. Its "vectorness" refers more to the abstract structure of the "combination of specifications" it carries, rather than being directly equivalent to a quantum state.

Their "magnitude" and "direction" are abstract: If we were to analogize PVs to "vectors" possessing "magnitude" and "direction," then "magnitude" here would refer to a certain "intensity of propensity" they carry or the "weight of possibility for participating in the formation of specific relations"; "direction" would refer to "what type of relations they tend to form" or "with what type of other PVs they resonate." These are all defined in an abstract "possibility space" or "relational rule space," not in physical space.

Therefore, when *Relatedness Theory* uses the term "Primordial Vector," we should always remember its etymology and core connotation —it is first and foremost a "primordial propensity," a most fundamental, distinguishable unit carrying specific potential for relation generation, defining "why a possibility is *this* possibility and not *that* one." The name "vector" is chosen to better generalize its multifaceted nature as a "carrier of specification potentiality" and to provide a name with greater universality and potential for development for its pivotal role in the theoretical system.

2.3 The Core Definition of PVs: Distinguishable Units of Potentiality and the "Genes" of Relation

Having established "propensity" as the core logical link in the transition from "Pure Being" to the possibility of specific relations, and having named the potentiality units carrying this "propensity" as "Primordial Vectors (PVs)," we can now reiterate and focus on their core definition:

A Primordial Vector (PV), within the ontological framework of *Relatedness Theory*, is designated as: the most fundamental, hypothetical distinguishable unit or potential degree of freedom constituting the ontological substrate of the sole, infinitely potential "Pure Being." PVs themselves are not real particles or entities but are purely carriers of "propensity," their core characteristic being the carrying of "potential commonality labels" that encode specific "relational propensities" or "interaction preferences." These labels stipulate the possibility and propensity (i.e., latent relational rules) for what types of "Dependency Paths (DPs)" can be established between that PV and other PVs. Within the background of "Pure Being," PVs exist in an unactivated potential state, their "propensities" yet unrealized, largely indistinguishable, and possibly in a philosophical sense, in states of superposition and latent relatedness. They are the most fundamental basis of possibility and source of rules for the formation of "Dependency Paths," the operation of the "Commonality Self-Activation Mechanism (CSAM)," and the ultimate emergence of structured existence.

This definition emphasizes the core role of PVs as carriers of "propensity" and their bridging function in the process of *Relatedness Theory's* generation of Relational Reality from the potentiality of "Pure Being."

2.4 Core Characteristics of PVs: Unfolding Centered on "Inherent Necessary Propensity"

To profoundly understand the essence of "Primordial Vectors (PVs)," we need to further unfold their core characteristics. These characteristics all revolve around the most fundamental specification of PVs—their "inherent necessary propensity" (i.e., their unique "way or potentiality of existence and interaction")—and manifest their diversity and complexity through the universal operation of the "Global Bidirectional Self-Organization (BSO) mechanism."

2.4.1 The Emergence of "Potential Commonality Rules": As "Relational-Specification Potentiality" Clarified from "Inherent Necessary Propensity" in Early BSO Interactions

The reason "Primordial Vectors (PVs)" can become the basis for subsequent "relation" generation and provide the basis for selective activation by the "Commonality Self-Activation Mechanism (CSAM)" is crucially because they are not entirely identical or purely random. Each PV intrinsically carries its unique "inherent necessary propensity." When these PVs, against the background of the eternal intrinsic fluctuations of "Pure Being," undergo primordial, universal interaction through the "Global Bidirectional Self-Organization (BSO) mechanism" (this being the "logical genesis" originating from the "bidirectional potential extensibility" and "inherent necessary propensity" of PVs and their interaction), certain PVs, due to some (possibly statistical) "matching," "complementarity," or "synergy" of their "inherent necessary propensities," may more easily form relatively stable or repeatable "interaction modes" or "associative combinations."

These relatively stable or repeatable "interaction modes" or "associative combinations" can be regarded as the result of PVs' "inherent necessary propensities" being "refined," "strengthened," or "organized" during the BSO process, thereby giving rise to more specific specifications that can be conceptualized as "potential commonality rules." That is to say, "potential commonality rules" are not some static "labels" or "attributes" pre-fixed on PVs when they are "created." Rather, they are an expression of "relational-specification potentiality" that is gradually clarified and stabilized through the interaction, mutual screening, and mutual "shaping" of PVs driven by their most fundamental "inherent necessary propensities" via the initial BSO process.

These emergent "potential commonality rules" possess the following characteristics:

1. Reflecting the types and specifications of "inherent necessary propensity": They describe which combinations of PVs' "inherent necessary propensities" are more likely to be mutually "compatible," mutually "attractive," or to jointly form some basic "relational pattern" (e.g., tending to form attractive relations, repulsive relations, or participating in the construction of some basic structural prototype) in early BSO interactions. These rules are extremely rich and diverse, corresponding to the initial germination of all possible types of relations and interaction modes within the potentiality of "Pure Being."

2. Constituting the initial source of rules for the cosmic "relational grammar": These "potential commonality rules," emerging from the "inherent necessary propensities" of PVs and early BSO interactions, constitute the most primordial source of rules for the "relational grammar" or "generative grammar" operating at the deepest level of the cosmos. They stipulate which PVs are more likely to interact in the subsequent CSAM process (based on their initially manifested "commonality"), and what types of "Dependency Paths (DPs)" such interactions are more likely to activate.

3. Providing the basis for selective activation by CSAM: These "potential commonality rules" are the intrinsic basis and "preference filter" (where "preference" here refers to a probabilistic orientation in dynamics, not teleological) for subsequent selection and activation by CSAM, such that the emergence of structure is not entirely random collision but carries a probabilistic orientation based on (initially emergent) "commonality."

4. Possibly implying differences in "propensity intensity": Different "potential commonality rules," or the combinations of PVs' "inherent necessary propensities" they depend on, may differ in their "stability" or "probability of manifestation" formed in BSO interactions. Certain rules might be more easily satisfied or possess greater "dominance," which could indirectly affect the probability weight of their being "selected" and activating corresponding DPs in the subsequent CSAM process.

2.4.2 The Potential State of PVs in "Pure Being": Coexistence of Multiple Relational Propensities and Potential Interconnection

Before any specific "Dependency Paths (DPs)" are activated, or any "Commonality References (CRs)" emerge, PVs and the "potential

commonality rules" (which reflect their "relational-specification potentiality") initially manifested through early BSO interactions exist in a very special state within the infinite potentiality background of "Pure Being":

1. Latency of Relational-Specification Potentiality:

The various specific "relations" or "interaction preferences" pointed to by the "inherent necessary propensities" carried by PVs and the "potential commonality rules" emerging therefrom are latent and not fully realized before being selectively activated by subsequent CSAM mechanisms. They are like dormant seeds whose intrinsic "growth direction" (i.e., specific "relational-specification potentiality") has not yet been "awakened" and "fully expressed" as concrete DPs by external conditions (such as specific fluctuation patterns of "Pure Being," the proximity of specific combinations of other PVs, or the "defining field" effect of initially formed CR prototypes).

At this point, these "potentialities" are pure possibilities, latent specifications of "if conditions (e.g., specific commonality matching and fluctuation triggers) are met, then such-and-such (a certain specific relation will form)."

2. Coexistence and Potential Interaction of Multiple Relational-Specification Potentialities:

Considering the infinity and undifferentiated nature of "Pure Being," as well as the rich diversity of PVs' "inherent necessary propensities," a single PV (or, a logically distinguishable "degree of freedom" or "propensity carrier" within "Pure Being's" potentiality) may simultaneously participate in multiple different, even seemingly conflicting, "potential commonality rules" or "relational possibilities" before being ultimately activated as a component of a specific DP.

For example, a PV's "inherent necessary propensity" might enable it to potentially participate in forming an "attractive" "potential commonality rule" (when interacting with certain specific types of other PVs via BSO), as well as potentially participate in forming a "repulsive" "potential commonality rule" (when interacting with other specific types of PVs via BSO). These seemingly different "relational-specification potentialities," before the PV is finally "locked" into a specific DP or CR structure, may all coexist in some way within that PV (or the local PV potentiality network it belongs to) and may, under the influence of "Pure Being's" fluctuations, compete with each other, influence each other, or

potentially "superpose" in complex ways (where "superposition" here refers to the simultaneous existence of multiple possibility paths, not the linear superposition of physical wave functions).

This coexistence of multiple "relational-specification potentialities" and the potential complex interactions between them provide the conceptual basis for specific "potential commonality rules" to be probabilistically "selected" and "amplified" within the subsequent CSAM mechanism due to their most effective "matching" with the environment (e.g., the characteristics of a "seed focus") or the "commonality" of other PVs at a particular moment, thereby leading to the "emergence" or "solidification-like" formation of a certain specific type of DP.

3. Potential Interconnection of PVs via Potential Commonality Rules:

Even if PVs are not yet directly connected by manifested DPs, they may establish some pre-existing, potential association or "interaction preference network" at the potentiality level because their "inherent necessary propensities" have jointly participated in forming certain shared or interrelated "potential commonality rules" during early BSO interactions.

For instance, the "inherent necessary propensities" of certain PVs might naturally (i.e., most easily in their early BSO interactions) form highly "complementary" or "synergistic" "potential commonality rules," such that once they are jointly activated in the subsequent CSAM process, they are extremely prone to participate in forming specific complex relational patterns. Their "relational destiny" is, to some extent, already mutually "linked" at the potentiality level through these shared or interdependent "potential commonality rules."

This potential interconnection between PVs, formed via "potential commonality rules," lays the groundwork for the subsequent DPs network to form with specific topological structures and possible non-local correlation characteristics (if these characteristics can be derived from the "bidirectional potential infinite extensibility" of PVs and the operation of BSO).

2.5 Core Functions of PVs: Laying the Foundation for Relation Generation and Self-Activation

In summary, "Primordial Vectors (PVs)," with "propensity" as their core essence, play the following indispensable core functions in the cosmic generation and evolutionary tableau of Relatedness Theory, serving as a crucial bridge between "Pure Being" and the subsequent "Dependency Paths (DPs)" and "Commonality Self-Activation Mechanism (CSAM)":

As "Raw Material": Providing Potentiality Units for Relation Generation

PVs are the basic units into which the infinite potentiality of "Pure Being" is logically "differentiated"; they are the most fundamental "potentiality nodes" or "interaction participants" for all subsequent "Dependency Paths (DPs)" to be formed. Without these PVs carrying specific "relational propensities," the establishment of DPs would be inconceivable, much like words cannot be formed without letters.

As a "Rulebook": Specifying the Possibility and Specificity of Relation Generation

PVs, through the "potential commonality labels" they carry (i.e., their specific "relational propensities" or "interaction preferences"), provide intrinsic selection rules and directional guidance for the subsequent activation of "Dependency Paths (DPs)."

They constitute the basis upon which the "Commonality Self-Activation Mechanism (CSAM)" can perform meaningful (rather than purely random) "commonality" matching and probabilistic activation. CSAM "judges" which DPs are more easily "ignited" precisely based on these "propensities" of PVs.

Thus, PVs are like the "rulebook" or "possibility filter" for cosmic relation generation; they screen out paths with specific interactive potential from the infinite possibilities of "Pure Being."

As the Ontological Prerequisite for CSAM Operation:

The "Commonality Self-Activation Mechanism (CSAM)"—whether it relies on the random fluctuations of "Pure Being," its core principle of "commonality matching," or the final process of "probabilistically activating DPs"—absolutely presupposes the existence of PVs and the "potential commonalities (propensities)" they carry.

PVs are the "fuel" (providing potentiality units) and the "design blueprint" (providing the possibility of relational rules) for this "cosmic genesis engine" of CSAM to start and operate effectively.

2.6 Re-examining the Fundamental Distinction Between PVs and DPs: From "Tending to Relate" to "Having Related"

A profound understanding of the core of PVs—"propensity"—allows us to grasp more clearly the fundamental distinction between it and the subsequent core concept of "Dependency Paths (DPs)." This distinction is precisely the crucial boundary marker in *Relatedness Theory* from "pure potentiality" to "initial reality."

PVs: "Relational Intention" in Potentiality—"Tending to Relate"

PVs and the "potential commonality labels" they carry represent a state of "being about to" or "possibly" relating.

They are static possibilities (where "static" here refers to their relations not yet being activated, rather than PVs themselves not being dynamic within "Pure Being"); they are the "grammatical rules" and "vocabulary" of the cosmic relational network.

The "propensity" of a PV itself does not constitute an actual connection; it is merely a "potential" or "disposition" pointing towards a future possible connection.

DPs: "Relational Realization" in Actuality—"Having Related"

"Dependency Paths (DPs)," on the other hand, are the dynamic relations themselves, formed after these "propensities" are actually activated and connected under the action of the "Commonality Self-Activation Mechanism (CSAM)."

They are the "sentences" and "chapters" actually written using the "vocabulary" and "grammatical rules" provided by PVs, constituting the dynamic network structure of the real world.

The existence of a DP signifies that the specific "propensities" of at least two (or more) PVs have been realized; a real, influence-transmitting, and mutually specifying connection channel has been established between them.

The Leap from "Propensity" to "Realization":

The activation process from PVs to DPs is a crucial step in *Relatedness Theory* from pure possibility to structured reality.

The core of this process lies in the "propensity" of PVs overcoming a certain "activation threshold" under the probabilistic mechanism of CSAM, transforming from a potential state of "tending towards..." to an actual state of "being..." (i.e., "being this specific relation").

This perspective focuses more on how "propensity" is concretized and

objectified into actual Dependency Paths through the operation of CSAM. DPs can be seen as the successful "expression" or "realization" of specific combinations of PVs' "propensities."

Therefore, the distinction between PVs and DPs is not merely the difference between "potentiality units" and "actual constituents," but more fundamentally, the difference between "the intention/possibility of relation generation" and "the action/actuality of relation generation." Understanding this point is crucial for grasping how *Relatedness Theory* progressively constructs a complex, dynamic Relational Reality from the most abstract potentiality of "Pure Being."

2.7 Chapter Summary: Primordial Vectors—Potentiality Messengers Carrying the Initial "Intention" of Cosmic Relation Generation

"Primordial Vectors (PVs)," whose core essence is "primordial propensity," play a crucial role in the ontological construction of *Relatedness Theory*, transitioning from the infinite, unspecified potentiality of "Pure Being" to concrete, structured "Relational Reality." They are not physical entities but hypothetical distinguishable units within "Pure Being's" potentiality, carrying specific "relational propensities" or "interaction preferences" (encoded as "potential commonality labels"). These "propensities" are the initial source of rules for the cosmic "relational grammar."

Against the background of "Pure Being," the "propensities" of PVs are in a latent state and may exist in philosophically meaningful states of superposition and potential relatedness. Their core function lies in providing the most fundamental "raw material" (potentiality units) and "rulebook" (relational possibilities) for the subsequent activation of "Dependency Paths (DPs)" and the operation of the "Commonality Self-Activation Mechanism (CSAM)."

By strictly distinguishing them from "Dependency Paths (DPs)"—from the potentiality of "tending to relate" to the actuality of "having related"—we see more clearly that PVs, in the cosmology of *Relatedness Theory*, are potentiality messengers carrying the initial "intention" (at a non-conscious level) of relation generation. They are the logical prerequisite and ontological cornerstone for the cosmos to ripple with the first hint of specific relatedness from the silent, all-possibility-filled sea of "Pure Being."

The understanding of "Primordial Vectors" and their "propensity" core lays a solid theoretical foundation for our next chapter's in-depth exploration of how the "Commonality Self-Activation Mechanism (CSAM)" ignites these potentialities, and how "Dependency Paths (DPs)" are woven into the initial relational network.

Chapter 3: Commonality Self-Activation Mechanism (CSAM)—The Genesis from Pure Being Potentiality to Primordial References and Relational Reality

3.0 Introduction: A Non-Teleological Exploration of Structural Origin—The Function and Positioning of the Commonality Self-Activation Mechanism

In the preceding two chapters, we have prudently established the most fundamental ontological cornerstones of *Relatedness Theory*: "Pure Being" as the sole, all-encompassing background of infinite potentiality, intrinsically containing eternal random fluctuations; and "Primordial Vectors (PVs)" as hypothetical, distinguishable units of potentiality carrying "relational propensities" (encoded as "potential commonality labels"). However, a core, and indeed one of the most perplexing, chasms in cosmology still lies before us: in the absence of any external designer, preset blueprint, or any intrinsic purpose, how can a seemingly uniform, infinite potentiality of "Pure Being" spontaneously give rise, from within itself, to this cosmos we experience, filled with structure, order, and diversity?

In other words, whence comes the initial "specification" or "asymmetry"? How does the first "structure" capable of stable existence "condense" out of a sheer ocean of possibilities? If cosmic evolution strictly adheres to non-teleological principles, then what constitutes the "first impetus" for existence to transition from a "pre-structural" state to a "structured" state?

The core of *Relatedness Theory's* answer to this fundamental question lies in the Commonality Self-Activation Mechanism (CSAM), which this chapter will now elucidate in depth. CSAM is not an externally imposed force or a mysterious directive; rather, it is conceived as a self-organizing dynamic process originating from the intrinsic characteristics of "Pure Being" and the "Primordial Vectors" it contains. Its fundamental role is precisely to elucidate how the first structural node in the cosmos possessing relative stability and capable of serving as an "anchor" for subsequent existential evolution—namely, the "Commonality Reference (CR)" in *Relatedness Theory*—spontaneously emerges from the pure, undifferentiated background of "Pure Being."

Therefore, CSAM plays the crucial role of the "ontological first-push

link"in the entire logical system of *Relatedness Theory*. It bridges the gap between absolute potentiality (Pure Being) and initial structured existence (the birth of CRs). Without the successful operation of CSAM, Pure Being might forever remain in its unspecified, diffuse state of potentiality. The subsequent selective activation of "Dependency Paths (DPs)," the delineation of "Relatedness Levels (RLs)," the manifestation of "Relative Entities (REs)," and the complex evolution of the entire cosmos driven by the "Existence-Evolution Paradox (EEP)" along the "Existence-Evolution Axis (EEA)" would all be inconceivable. The key to understanding CSAM lies in profoundly grasping its strictly non-teleological essence and its purely self-organizational characteristics.

3.1 Operational Prerequisites for CSAM: The Background of Pure Being, the "Relational Propensity" of Primordial Vectors, and Potential Commonality

The occurrence of the Commonality Self-Activation Mechanism (CSAM) does not arise ex nihilo; it depends on several most fundamental ontological posits already established by *Relatedness Theory* in the preceding two chapters. These posits are like the "fuel" and "components" necessary for this "cosmic genesis engine" of CSAM to start and operate.

3.1.1 Pure Being: As the Stage of Infinite Potentiality and the Source of Intrinsic Random Fluctuations

As detailed in Chapter 1, "Pure Being" is the sole, absolute ontological foundation of *Relatedness Theory*. It is an infinitely rich totality of potentiality, transcending any specific specification, and encompassing all possible spacetimes, things, structures, orders, and directionalities. For CSAM, "Pure Being" plays at least two crucial roles:

The "stage" and "raw material reservoir" of infinite potentiality: "Pure Being" provides an infinitely vast "possibility space" for the operation of CSAM. All "Primordial Vectors (PVs)" participating in the self-activation process, along with the "potential commonalities" they carry, originate from this background of infinite potentiality. It is the inexhaustible "raw material reservoir" from which CSAM "sculpts" the initial structures.

The source of intrinsic random fluctuations: "Pure Being" is not a dead potentiality. Its infinity and nature of transcending specific specification intrinsically and ontologically entail eternal, minute, potential random fluctuations or uncertainties. These random fluctuations, originating from the deepest essence of "Pure Being," like ripples on a calm lake, are the most primordial, most fundamental source of perturbation that breaks the initial (logical) perfect uniformity of "Pure Being" and triggers the CSAM process. Without these intrinsic, uncontrolled fluctuations, potentiality might never be "ignited."

3.1.2 Primordial Vectors (PVs): As Potentiality Units Carrying "Relational Propensity" (Encoded as "Potential Commonality Labels")

Chapter 2 has already clarified that "Primordial Vectors (PVs)" are hypothetical potentiality units introduced by *Relatedness Theory* to conceptualize how the potentiality of "Pure Being" can possess intrinsic differentiation and the possibility for specific relation generation. Their core essence lies in being carriers of "propensity" (or "tendency"). For the operation of CSAM, the key roles of PVs are:

Distinguishable carriers of potentiality: PVs allow the infinite potentiality of "Pure Being" to no longer be a completely chaotic mass, but to be (at least theoretically) distinguishable into "units" carrying different "relational propensities." These "units" are the basic objects for selection and combination by CSAM.

Encoders of "relational propensity": Each PV, through the (one or more sets of) "potential commonality labels" it carries, encodes its specific "relational propensity"—that is, its possibility and preferentiality for establishing specific types of "Dependency Paths (DPs)" with other PVs. These "propensities" are the foundation for subsequent "commonality" matching and relational lock-in.

Latent and not directly identifiable characteristics within Pure Nothingness: It must be re-emphasized here that PVs, in their primordial state as part of "Pure Being's" potentiality, are diffuse and unactivated. For any subsequently formed, finite "Relatedness System (RS)," those PVs not activated and organized by its core "Commonality Reference (CR)" constitute the background of "Pure Nothingness" relative to that RS. Individual, isolated PVs cannot be directly identified or perceived by any finite RS (including cognitive subjects). They are the logical starting point of theoretical deduction, the ontological primitives for "Relational Reality" to be possible, but not direct objects at the experiential level. This characteristic is crucial for understanding the subsequent role of "Pure Nothingness" as the boundary of an RS and how identifiable reality emerges from unidentifiable potentiality, which we will discuss in detail in section 3.5. The operation of CSAM is precisely the process of "screening" out the initial identifiable structures from this ocean of unidentifiable PV potentiality through probabilistic processes.

3.1.3 Potential Commonality: As the "Hidden Grammar" or Rule Potentiality for Possible Stable Structure Formation Between PVs, Serving as the Basis for CSAM's Selective (Probabilistic) Activation

"Commonality" is the core of the name "Commonality Self-Activation Mechanism" and also the key to its ability to operate and produce non-arbitrary results. "Commonality" here does not refer to already manifested, directly observable shared attributes, but rather to latent relational attributes, interaction modes, or structural propensities hidden among PVs. These potential commonalities enable a group of PVs, under specific conditions (such as triggering by random fluctuations), to more easily form stable, self-consistent structures.

Diverse forms of commonality: This potential "commonality" can manifest in various forms, such as:

Compatibility: The "relational propensities" carried by different PVs can coexist without conflict or mutually complement each other.

Similarity: Different PVs carry similar "commonality labels," causing them to exhibit similar behaviors or responses in specific interactions.

Complementarity: The "relational propensities" of different PVs fit together like a "key" and "lock," forming a whole that is functionally more complete or structurally more stable.

Cyclical Dependency: The "relational propensities" of a group of PVs can form a closed loop where they are connected end-to-end and mutually supportive.

And other more complex potential matching patterns at the logical, geometric, or dynamic levels.

"Hidden grammar" or "rule potentiality": "Potential commonality" is like the "hidden grammar" or "rule potentiality" operating at the deepest level of the cosmos. It is not formulated by some external legislator but is intrinsic to the "relational propensities" of PVs, a manifestation that the potentiality of "Pure Being" is not entirely disordered. These "hidden grammars" stipulate which PV combinations are "meaningful" (i.e., likely to form stable structures) and which are "meaningless" (unlikely to form stable structures).

The basis for CSAM's selective (probabilistic) activation: The operation of CSAM is not purely random collision. It is precisely because these potential "commonalities" exist between PVs that when random fluctuations cause PVs with matching "commonalities" to interact, the probability of them forming stable relations (and ultimately emerging as CRs) is significantly amplified. In other words, "commonality" acts as an

implicit "selection filter" in the CSAM process, allowing structured existence to be "screened" out from infinite possibilities in a non-completely arbitrary manner. This "selection" is probabilistic, spontaneous, and not conscious or teleological.

In summary, the successful operation of CSAM is inseparable from the stage of infinite potentiality and the impetus of intrinsic fluctuations provided by "Pure Being"; inseparable from "Primordial Vectors" as distinguishable units carrying "relational propensities" and "potential commonality labels"; and even more so, inseparable from these "potential commonalities" themselves as the "hidden grammar" for self-organization to occur and for structured existence to emerge probabilistically and non-arbitrarily. These three together constitute the ontological prerequisites for CSAM to be initiated and ultimately to give birth to the cosmos's first stable reference (CR).

3.2 The Core Mechanism of CSAM: The Synergistic Dual Paths for the Birth of a Commonality Reference (CR) —The "Focusing" of Superpositional Emergence and the "Solidification" of Entangled Stabilization

The Commonality Self-Activation Mechanism (CSAM), as the core dynamic process in *Relatedness Theory* explaining how the first stable structure—the Commonality Reference (CR)—spontaneously emerges from the infinite potentiality background of "Pure Being," does not operate via a single, linear path. Instead, it is understood as a more complex, more subtle self-organizing process, comprising at least two primary (or synergistically operating) phase-like paths: "Superpositional Emergence" and "Entangled Stabilization." These two paths each play an indispensable role in the preliminary "focusing" and final "solidification" of CRs, jointly accomplishing the grand feat of transitioning from pure potentiality to nascent structure.

3.2.1 Superpositional Emergence: From Potentiality Convergence to Information Foci – Nested Insights from "Light Beams" and "String Art"

"Superpositional Emergence" focuses more on the accumulation of quantity, statistical effects, and the convergence of potentiality density or influence intensity. It describes how, within the infinite potentiality background of "Pure Being," due to its eternal intrinsic random fluctuations, certain local regions can temporarily and non-structurally (meaning, without yet forming a stable internal organizational logic) concentrate the potentiality of "Primordial Vectors (PVs)" or the potential influences they carry. This results in the generation of initial, (theoretically) distinguishable "information foci" or "imprints" against an otherwise uniform background.

Core of the mechanism: Statistical convergence of potentiality. In the infinitely vast ocean of potentiality that is "Pure Being," the latent "influences," "signals," or "propensities for action" carried by PVs (regardless of their specific physical nature, we can abstractly analogize them to a kind of "potentiality flow" or "diffuse field of information") will inevitably, under the effect of random fluctuations, undergo temporary convergence in certain abstract "locations" (these could be information spaces, state spaces, or regions within some pre-geometric structure that

has not yet manifested spacetime). This convergence can be realized in two main ways:

Density Fluctuation & Convergence: In a certain local region, a large number of PVs carrying some similar foundational "marker" (e.g., approximate energy levels, information types, or some basic "relational propensity"—these markers themselves being potential attributes of PVs) accidentally gather due to random walk or wave-like effects. This causes the "PV concentration," "PV activation potentiality density," or some related statistical quantity in that region to become significantly higher than the surrounding average level.

Intensity Superposition & Constructive Interference: Multiple independent PVs, possibly from different "directions" and with different "phases" (in an abstract sense), carrying latent "influence intensities," happen to undergo an accidental, approximate "constructive interference" or simple linear (or non-linear, depending on latent rules) superposition at a certain point or in a very small region. This leads to the total "influence intensity," "salience," or "signal amplitude" in that region far exceeding the average background fluctuations.

Nested insights from core exemplars: "Light beam convergence" and "string art." These two examples reveal how "Superpositional Emergence," through multi-layered nesting, can give rise to increasingly complex new information from simple potentiality convergence:

(a) Multi-layered nested emergence of information in "light beam convergence":

First-layer superposition and information emergence (generation and localization of points): Imagine innumerable, extremely faint "potentiality light beams" (representing independent PVs or their most basic influence flows) coming from different abstract "directions." When these "potentiality light beams," due to random fluctuations, undergo dense intersection and superposition of influence at a certain abstract "point" or in a very small region, the "influence intensity" or "potentiality density" at that point will be significantly enhanced. This is like multiple independent light beams in reality precisely converging at the same point in space, producing a "focus" far brighter than any single beam. The appearance of this "focus" is itself the first layer of "new information"—it marks a region that is statistically or intensely "anomalous," a "singularity" or "node" prominent from the homogeneous background. This "brighter focus" is no longer merely diffuse potentiality but

possesses initial distinguishability and potential locational significance. It "identifies" in infinite potentiality a region where "something special might be here."

Second-layer superposition and information emergence (connection of lines and outline of figures): Now, imagine that in the vast background of "Pure Being," due to continuous, possibly larger-scale correlated random fluctuations or some extremely faint latent commonality guidance (e.g., some primordial "directional propensity" carried by PVs), such "potentiality foci" (products of first-layer superposition) do not appear in isolation and uniformly at random, but may emerge in patches or strings at different locations with a certain probability. When multiple such "brighter foci" (which we can regard as abstract "points" or "nodes") are activated simultaneously or in short succession in a specific spatial (in an abstract sense) arrangement or density distribution pattern, a second-layer superposition effect may form between them. For example:

Formation of a "line": If a series of "foci" appear closely and approximately linearly arranged, then a higher-level "recognition mechanism" (this could be the basis for subsequent "Entangled Stabilization" operations, or a theoretically posited observer) might perceive the outline or trajectory of an abstract "line" from this "superpositional distribution of points." This "line" is not pre-existing but is "new information" of a second layer—structural connection or directionality—emerging from the overall arrangement pattern of discrete "foci."

Formation of a "figure": Furthermore, if more "points" (originating from first-layer light beam convergence foci) are activated simultaneously or in short succession in more complex patterns with specific topological relationships (e.g., closed, bifurcated, symmetrical, or an array of some repeating unit), then these "superpositional patterns of points" can, at a higher level, give rise to even more abstract geometric figures, structural outlines, or information patterns. This is the generation of more advanced "new information," such as form, symmetry, or the rudiments of some organizational principle. This process is no longer just a simple addition of intensity but the holistic recognition of spatial distribution patterns and the emergence of higher-order structural information.

(b) The insight from "string art": From linear superposition to gestalt perception—an analogy for cognitive integration by higher-order CRs. This nested emergent process from "point to line to figure" bears a profound resemblance to the artistic principles of "String Art." It can serve as a supplementary understanding of the above process and inspire us to consider how higher-level information (and even meaning) emerges from basic superposition in subsequent cognitive integration (analogous to the role of higher-order CRs):

Basic elements and first-layer superposition (convergence of dense linear units): In string art, artists use many single, straight, colored thin threads (these threads can be analogized to PVs carrying specific propensities, or to the most basic "potentiality path segments" formed by the connection of first-layer "light beam foci"). Each thread itself is simple. However, by making regular, multi-layered, seemingly simple linear connections and superpositions of these single threads between specific "anchor points" on a board, in a particular order and with specific tension, innumerable straight line segments incredibly give rise visually to smooth curved outlines, complex geometric figures, and even abstract forms possessing a sense of depth and volume. This is not an inherent attribute of any single thread, nor a simple accumulation of quantity, but rather the result of a large number of linear elements, under specific constraints (anchor point positions, winding rules), whose overall arrangement pattern is integrated and identified by a higher-level perceptual system (e.g., our human visual cognitive CR) as a meaningful "figural RE" possessing specific "Gestalt" characteristics. Initially, perhaps only the most basic "connection possibilities" (first-layer superposition) are defined by the anchor points, but as linear units continuously enrich and intertwine under specific rules, higher-order "structural information" (such as symmetry, curvature, topological relations) emerges, ultimately being identified by a cognitive subject as a unified, complex phenomenal RE—the "string art piece" with specific aesthetic or symbolic meaning. This profoundly enlightens us on how, in the cosmic tableau of *Relatedness Theory*, higher-level information, structure, and even "meaning" (endowed by higher-order CRs at the cognitive level) can progressively emerge from relatively simple, foundational "potentiality units" (such as PVs or their initially formed DPs segments) through a multi-layered process of "superposition" and "integration" following specific (possibly self-organized emergent) CR rules, rather than from pre-existing complex components. (The

foundational PVs forming these "anchor points" are latently and not directly identifiable in Pure Being, but the "seed foci" or "information hotspots" formed at this stage, due to their statistical salience or intensity differences, become preliminarily distinguishable regions from the background of "Pure Being." These regions are like faint sparks flickering randomly in the darkness; although they themselves may not be stable and may not have formed complex internal structures, they break the perfect uniformity of "Pure Being," marking a preliminary, temporary breaking of symmetry. More importantly, they provide potential "candidate locations" or "trigger points" for the subsequent, more refined and stable process of structural formation (i.e., "Entangled Stabilization"). They greatly increase the probability of "finding" or "igniting" those specific PV configurations that can truly form stable structures within the infinite "Pure Being," completing the crucial transition from "completely undifferentiated" to "preliminarily differentiated.")

3.2.2 Entangled Stabilization: From Relational Lock-in to Structural Solidification – The Final Formation of Commonality References (CRs)

If "Superpositional Emergence" emphasizes the generation of preliminary, unstable "foci" through the convergence of quantity and statistical effects, then "Entangled Stabilization" focuses more on qualitative synergy and structural lock-in. It describes how, in regions where "Primordial Vector (PV)" interactions become frequent (such as within the "seed foci" formed by "Superpositional Emergence," or any other regions with high PV density), if a set of PVs possesses specific "structural commonality" capable of forming a self-consistent closed loop, their interaction will trigger positive feedback. This leads to these PVs mutually "locking in" or (in a philosophical sense) "entangling," thereby forming a dynamically stable structure with intrinsic organizational principles—this is the first truly stable structure in *Relatedness Theory*: the Commonality Reference (CR).

Triggering and Prerequisite Conditions:

Triggering: The potential "structural commonality" between PVs and the actual interaction occurring between them.

Prerequisite: A high density of PVs in a local region, significantly increasing the probability of effective interaction between PVs. This

condition might precisely be provided by the "seed foci" created by the aforementioned "Superpositional Emergence."

Core Mechanism: "Positive Feedback & Relational Lock-in" Guided by "Structural Commonality." Within this region of frequent interaction, assume there exists a set or multiple sets of PVs (P1, P2, P3, ...). The "potential commonality labels" (i.e., their "relational propensities") they carry cause their potential interaction patterns to precisely satisfy a certain "Structural Commonality." This "Structural Commonality" is key to whether a stable CR can be formed, and its specific forms are diverse, for example:

Cyclical Dependency: The (potential) "output" of P1 tends to activate or stabilize P2, the "output" of P2 tends to activate or stabilize P3, ..., and the "output" of Pn ultimately tends to activate or stabilize P1, forming a closed, interdependent positive feedback loop of P1 → P2 → ... → Pn → P1.

Complementary Cooperation: P1 and P2 each possess some "incomplete" propensity or functional potential, but their interaction (e.g., P1's "output" is a necessary "input" for P2's normal "operation" or stability, and vice versa, or they can only complete a certain crucial "closing operation" by acting together) can form a combination that is functionally more complete, structurally more stable, and overall more "economical" or "self-consistent."

Mutual Constraint Satisfaction: The activation states of a group of PVs, or the relational patterns they form, jointly satisfy certain more complex constraints at the mathematical, physical, or informational level (these constraints may originate from deeper "Pure Being" potentiality rules or higher-order commonalities). This mutual satisfaction endows this specific PV combination with higher stability or a lower "cost of existence" (if definable) compared to other random combinations.

Resonance: There exists some abstract matching in "frequency," "rhythm," or "pattern" between PVs (or their potential interaction modes), such that their interactions can continuously and constructively amplify and synchronize each other, thereby forming a holistically coordinated stable structure where energy (or some generalized "activity level") is not easily dissipated.

"Once these 'Primordial Vectors (PVs)' possessing 'structural commonality' are 'ignited' by random fluctuations (possibly fluctuations intensified within the 'seed foci' formed by 'Superpositional Emergence')

and begin to interact, their intrinsic compatibility, synergy, or cyclical dependency (all of which are 'potential commonality rules' manifested by PVs' 'inherent necessary propensities' in specific combinations and through early interactions of the 'Global Bidirectional Self-Organization (BSO) mechanism') will, under the drive of BSO, trigger a self-organizing process of 'Positive Feedback & Relational Lock-in':

Mutual Reinforcement: The mutual influence between compatible PVs will amplify each other's activation intensity or the stability of the relational patterns they constitute. For example, in a PV combination embodying a cyclical dependency 'potential commonality rule,' the stable activation of one link will (via the BSO mechanism) enhance the probability of stable activation of the next link, and this effect will ultimately feed back to strengthen the stability of the entire cycle.

Stabilization and Probabilistic Highlighting of Patterns: PVs, through continuous BSO interactions, will mutually 'corroborate' and 'strengthen' those interaction modes and relative positions that conform to their 'structural commonality.' This makes such interaction modes, based on 'structural commonality' and capable of forming self-consistent feedback, more likely to persist in dynamic evolution compared to other numerous random, temporary, or intrinsically unstable interaction combinations, and to be probabilistically 'screened' and 'highlighted' from many possibilities (where 'selection' here is the result of dynamic stabilization screening, not teleological).

Lock-in and Integration of Relations: Ultimately, these PVs with specific 'structural commonality' and their activated 'relational propensities' (i.e., the 'Dependency Paths (DPs)' formed between them) will enter a 'locked-in' state of mutual dependence, mutual specification, and inseparability. These DPs are no longer isolated connections prone to break due to random fluctuations, but are integrated by the BSO mechanism into a dynamically stable, internally logically self-consistent closed-loop structure or tightly coupled network mode. This stabilized relational structural pattern embodies a relative steady state that the system has reached in that local region through BSO's self-organizing evolution, capable of resisting certain perturbations and exhibiting specific organizational principles.

The Emergent Effect of 'Purification' and 'Exclusion': In the process of formation and maintenance of this stable relational structural

pattern, the activation of those PVs whose 'inherent necessary propensities' or activation modes are incompatible with the 'commonality rules' of this core structure will be inhibited (e.g., because they cannot effectively integrate into this formed stable feedback loop, or their generated 'signals' are uncoordinated with the core pattern and are 'averaged out' in the overall dynamics of BSO). Alternatively, the perturbing influences they exert on this core structure will be effectively dissipated or 'excluded.' In this way, the system, driven by BSO, spontaneously 'purifies' its core commonality pattern, making it more distinct and stable."

Result: The Final Formation of a "Commonality Reference (CR)." The ultimate result of "Entangled Stabilization" is the formation of a structure that is more stable, more persistent, and possesses a more definite commonality content and intrinsic organizational principle than the "seed foci" produced by "Superpositional Emergence"—this is the first truly meaningful "Commonality Reference (CR)."

This CR is not merely a statistical density peak or an intensity hotspot, but a dynamic structure with intrinsic organizational principles and self-sustaining capabilities. Its internal PVs (or already formed DPs) are interconnected and operate in a specific, self-consistent manner.

The "commonality" it embodies is concrete and structural (e.g., a certain symmetry, a certain cyclical logic, a specific information processing mode). Furthermore, this "solidified" commonality becomes the "law" or "standard" by which this CR defines existence, interaction, and evolution within its local sphere of influence.

It possesses a certain Dynamical Resilience, capable of resisting a certain degree of random perturbation, thus being more persistent than "seed foci" formed merely by statistical superposition, and having a discussable "period of definitional power, $T_{CR} > 0$."

Characteristics: Core Features of the Product of "Entangled Stabilization"

Structurality & Initial Functionality: Emphasizes the emergence of stable structures with intrinsic organization, resulting from PVs synergizing and locking in through relations (DPs) possessing specific structural commonality. Once formed, this structure begins to possess its initial and most fundamental function—that of a "reference frame" or "definer" for its local environment.

Stability & Persistence: CRs formed through positive feedback and relational lock-in possess relatively high dynamic stability, capable of serving as a foundation and "anchor" for the evolution of subsequent, more complex forms of existence.

Purification & Definition: Through positive feedback loops and the exclusion of incompatible factors, a CR "purifies" and solidifies its core commonality pattern. Simultaneously, it also begins to exert a passive, structural "defining" influence on the surrounding "Pure Being" potentiality (other PVs)—that is, which PVs, due to their "potential commonality" being compatible with this formed CR, are more easily activated and incorporated into its sphere of influence.

3.2.3 Synergistic Evolution of the Dual Paths: The "Primer" and the "Fixative" – Hierarchy and Complexity from Initial Foci to Stable References

Within the real, extremely complex potentiality background of "Pure Being," the "Superpositional Emergence" and "Entangled Stabilization" paths of CSAM are not always strictly separate or linearly sequential. They are more likely a complex dynamic process involving synergistic cooperation, mutual dependence, and even varying emphasis at different stages and under different conditions.

Superpositional State as "Stage Setter" and "Candidate Provider":

"Superpositional Emergence," by generating numerous, preliminary "seed foci" or "information hotspots" based on statistical effects and intensity convergence within the vast, seemingly uniform background of "Pure Being," acts like marking out "candidate oasis locations" in an endless desert.

These "seed foci," though themselves unstable and lacking complex structure, provide high-probability venues for subsequent "Entangled Stabilization." In these regions where PV density or influence intensity has already been significantly enhanced by superposition, the probability of PVs engaging in effective interaction and triggering positive feedback and relational lock-in based on "structural commonality" is undoubtedly much higher than in a purely random background. Superpositional Emergence completes the screening process from "nowhere to start" to "somewhere to follow."

Entangled State as "Solidifier" and "Refiner":

"Entangled Stabilization" then performs a more refined, more structural screening and construction within these "seed foci" "preheated" or "localized" by the superpositional state (or independently in any other region satisfying its triggering conditions).

Through positive feedback and relational lock-in, it truly "solidifies" those regions that have already manifested statistically or in terms of intensity, and where the internal PVs happen to possess "structural commonality" capable of forming stable, self-consistent structures.

This "solidification" process not only simply enhances the original intensity or density but, more importantly, endows this region with intrinsic organizational principles, dynamic stability, and definite commonality content, transforming it from a temporary "hotspot" into a Commonality Reference (CR) capable of serving as an existence basis (i.e., possessing a non-zero period of definitional power, $T_{CR} > 0$). Simultaneously, it also "refines" the commonality represented by the CR, excluding incompatible factors.

Hierarchical and Complexity Gradient Emergence:

The synergistic action of these two mechanisms may also be related to the hierarchy and complexity of the ultimately emergent CR. Structures in the cosmos do not arise in a single step.

Emergence of simple CRs: The initial, simplest CRs (perhaps manifestations of some fundamental physical symmetry breaking, or "foci" of some most basic perceptual patterns) might rely more on the preliminary convergence of "Superpositional Emergence"; their "structural commonality" is relatively simple and more easily "ignited" by random fluctuations and statistical effects.

Emergence of complex CRs: Whereas the emergence of more complex, more abstract CRs (e.g., CRs defining the core logic of life systems, or CRs forming advanced concepts and logical rules in human cognition) might require longer, more precise "Entangled Stabilization" processes, involving the matching, lock-in, and hierarchically nested feedback loops of more complex "structural commonalities" among more PVs. These complex CRs might emerge further through CSAM (possibly iterative, higher-order CSAM) on the (relatively) stable environment and rule basis provided by earlier, simpler CRs.

Iteration and Nesting: It is even conceivable that a CR solidified by "Entangled Stabilization" can itself act as a more macroscopic "unit,"

participating in larger-scale "superpositional" convergence to form higher-level "seed foci," which are then solidified by higher-order "entangled" mechanisms into higher-level CRs. This provides a possible dynamic path for the spontaneous formation of the hierarchical structure of CRs (SRO, CRO, ARO) in *Relatedness Theory*.

Therefore, the dual-path synergy of CSAM not only explains how the first CR is born from "Pure Being" but also provides an intrinsic mechanism for the subsequent further evolution, complexification, and hierarchization of CRs. It depicts a magnificent picture of cosmic structure, beginning from the faintest ripples of potentiality (superpositional foci), and through the resonance and lock-in between relations (entangled solidification), gradually constructing increasingly stable and complex "anchors of existence" (CRs).

3.3 The Fundamental Characteristics of CSAM: Strict Non-Teleology, Pure Self-Organization, and Probabilistic Genesis

Profoundly understanding the operation of the Commonality Self-Activation Mechanism (CSAM) hinges on firmly grasping its three fundamental characteristics: strict non-teleology, pure self-organization, and the probabilistic nature of its genesis. These three traits are key to how *Relatedness Theory* distinguishes itself from traditional creationist or design theories, and they are the cornerstone for its logically self-consistent explanation of "emergence from nothing" (more accurately, "emergence of initial structure from pure potentiality").

Strict Non-Teleology:

No Preordained Goal: The operational process of CSAM, and its ultimate product—the emergence of a Commonality Reference (CR)—are not aimed at achieving any preset goal or final state. No "blueprint" or "plan" exists in the cosmos guiding how, when, or where a CR must appear. The specific form of a CR is the result of spontaneous emergence, not an approximation of some ideal archetype.

No Intrinsic Purpose: In the CSAM process, whether it is the random fluctuations of "Pure Being," the interaction of "Primordial Vectors (PVs)," or the convergence of "Superpositional Emergence" and the lock-in of "Entangled Stabilization," no component or stage possesses any "intention" or "purpose" to form a CR or to realize some subsequent function. Any "function" a CR might eventually possess (e.g., as a reference frame, defining rules) is a naturally derived effect after its stable structure exists; it is a consequence of "what it is," not the reason "why it is." This thorough bracketing of teleology is an important premise for *Relatedness Theory* to maintain its scientific explanatory power.

Pure Self-Organization:

Entirely Intrinsic Driving Force: The entire process of CSAM is driven solely by the intrinsic characteristics of the "Pure Being" background itself (such as eternal random fluctuations) and the latent interaction laws between "Primordial Vectors (PVs)" (as stipulated by their "potential commonality labels"). It requires no "prime mover," "designer," "organizer," or initial injection of energy/information external to the "Pure Being" system (beyond the potentiality and dynamism inherent in "Pure Being" itself).

No Central Control: In the operation of CSAM, there is no centralized

control unit or coordination mechanism guiding how PVs converge or lock in. The generation of order is a macroscopic effect spontaneously emerging in a distributed manner from a multitude of local interactions satisfying specific (probabilistic) conditions, through mechanisms like positive feedback.

Mechanistic and (Conditional) Dynamical Inevitability: Once random fluctuations trigger PV interactions that satisfy specific "commonality" conditions (whether statistical convergence or structural lock-in), the subsequent superposition effects or positive feedback lock-in processes will automatically unfold according to fundamental laws at the physical, informational, or mathematical level (these laws themselves may be manifestations of deeper CRs, or part of "Pure Being's" potentiality rules). The outcome, under given conditions, is to some extent a dynamic "inevitability" (although its occurrence is probabilistic). This means that as long as "Pure Being" possesses the basic prerequisites set by *Relatedness Theory*, the emergence of some form of CR is an unavoidable, naturally occurring phenomenon.

Probabilistic Nature of Genesis:

Central Role of Contingency: The emergence of the first CR initially depends on the contingent triggering by random fluctuations in the "Pure Being" background, and on the coincidental existence of PV configurations capable of forming stable structures (i.e., potential commonalities being matched) in specific spatiotemporal (or abstract potentiality space) regions. This is a probabilistic event, fraught with contingency. The cosmos's first "seed of structure" could have been "ignited" at any "place," at any "time" (if these concepts were meaningful then), in any one of the possible forms (satisfying stability conditions).

Source of Diversity Potential: Due to the probabilistic nature of CSAM and its sensitivity to initial conditions, even within the same "Pure Being" background, a wide variety of initial CRs with diverse properties might emerge due to minute differences in initial fluctuations or local specificities in PV commonality distribution. This lays the foundation for the diversity and complexity of subsequent cosmic evolution.

Non-Unique, Non-Optimal Outcome: The CR produced by CSAM is not necessarily the "only possible" one, nor is it necessarily the "most superior" (by any preconceived evaluation standard). It is merely the one (or the set of ones) that happened to stabilize under the specific conditions at that time through a probabilistic self-organizing process. Subsequent evolution (such as CR reconstruction driven by EEP) may then further "screen" and "optimize" these initial CRs (where

"optimization" is still non-teleological, referring to its ability to maintain its own existence and development under specific environmental and intrinsic constraints).

In summary, these three fundamental characteristics of CSAM—strict non-teleology, pure self-organization, and the probabilistic nature of its genesis—collectively depict a magnificent picture of the origin of cosmic structure: it requires no divine intervention, no a priori blueprint, and no intrinsic will or purpose. Solely by virtue of the intrinsic richness of "Pure Being's" infinite potentiality, its eternal random fluctuations, and the "commonality rules" latent within "Primordial Vectors," it can, in a completely natural, probabilistic, and mechanistic way, gestate the first stable structure—the Commonality Reference (CR)—from the initial chaos (or pure potentiality transcending chaos). This is *Relatedness Theory's* core answer to the most fundamental question of the cosmos's transition "from 0 to 1."

3.4 The Direct Historical Consequence of CSAM: The Foundational Significance of the First Commonality Reference (CR)

The most direct, and also the most historically significant, consequence of the successful operation of the Commonality Self-Activation Mechanism (CSAM) is the birth of the first (or first batch of) stable Commonality Reference(s) (CR). This event holds landmark foundational significance in the epic of cosmic evolution in *Relatedness Theory*. It marks the cosmos's transition from a state of pure, unspecified potentiality to a new era of "existence" that is structured, distinguishable, and ultimately capable of evolving complexity.

Breaking the (Pre-structural) Symmetry and Homogeneity of Pure Being:

"Pure Being," in its primordial state as the ontological starting point, is infinitely rich but transcends any specific specification, possessing no presupposed structure or order. We can understand it as a perfect (or rather, transcending the very concept of symmetry/asymmetry) totality of potentiality.

CSAM, through its dual-path synergistic mechanism (preliminary focusing of Superpositional Emergence and structural solidification of Entangled Stabilization), spontaneously and locally "condenses" the first CR with specific commonality content, stable structure, and distinguishable boundaries from this uniform background of "Pure Being."

The appearance of this CR, however simple it might initially be, breaks for the first time the (pre-structural) perfect symmetry and homogeneity of "Pure Being." It is like the first "island" rising from the boundless ocean of potentiality, or the first "star" ignited in endless darkness. This event signifies the first ontological step of the cosmos from a "pre-existential" state of pure potentiality towards "existence" in the true sense, possessing intrinsic structure and distinguishability. In this sense, the operation of CSAM and the birth of its product, the CR, can be regarded as the "ontological singularity" or "genesis event" (where "genesis" here is spontaneously emergent, not externally created) in the cosmos of *Relatedness Theory*.

Establishing an "Existence Basis" or "Definition Basis":

When a Commonality Reference (CR)—that is, a stable relational structural pattern embodying specific "commonality rules" and emerging from the interaction of "Primordial Vectors (PVs)" through the "Global

Bidirectional Self-Organization (BSO) mechanism" and "Commonality Self-Activation Mechanism (CSAM)"—forms and stably exists, its own unique structural characteristics and the "commonality rules" it solidifies (e.g., a certain relational symmetry, a self-consistent cyclical logic, or a stable information processing mode) passively yet fundamentally constitute the "existence basis" or "definition basis" for the subsequent ordered manifestation of "Relational Reality" within its local sphere of influence.

This means that the existence of this CR (and its inherent "identifiability threshold") provides the following possibility conditions and referential framework for all subsequent "existence" processes driven by BSO within that region (e.g., the "responsive activation" and "responsive weaving" of "Dependency Paths (DPs)" under its reference, the manifestation of "Relative Entities (REs)" under its "projection rules" and "identifiability threshold"):

A Reference Frame for Distinguishing and Comparing Differences: Only under the reference of this stable relational structural pattern of the CR can "differences" within the otherwise diffuse DPs network activity and PV potentiality fluctuations be effectively identified, measured, and compared, thereby laying the foundation for the generation of information (as "identifiable difference").

A Set of Emergent Operational Rule-Patterns Manifested in BSO Operations: The "commonality rules" embodied by this CR are not a set of actively imposed instructions. Rather, when the DPs network and REs interact and evolve via the BSO mechanism under its reference (and screened by its "identifiability threshold"), their overall behavior will (non-teleologically, probabilistically) tend to exhibit "connection preferences," "manifestation patterns," and "interaction laws" that are consistent with the CR's rules and observable. These "laws" are relative, CR-dependent, and emergent results of BSO operation within the context of that CR.

A Framework for Meaning Generation within a Specific Context: Random fluctuations of "Primordial Vector (PVs)" potentiality or initially activated DPs activities, which might originally lack specific meaning, may be constructed (possibly under further reference by a cognitive subject RS_Cognition, if applicable) with specific "informational content," "functional directionality," or "contextual meaning" (relative to that CR) when they become referentially associated with this stably emerged CR and are incorporated into the overall operation of the "Relational Reality" region defined by it.

This foundational referential role of the Commonality Reference (CR) is the logical premise and referential basis for the subsequent establishment of more complex "Relatedness Systems (RSs)" and "Relatedness Levels (RLs)" (i.e., the emergence and stabilization of their core CRs). Without this "fulcrum of order" and "framework of meaning" provided by the initial CR (as an emergent product of relational network self-organization, not a presupposition), the structured evolution of the cosmos would be inconceivable.

Paving the Way for the Unfolding of Identifiable "Relational Reality":

Before the emergence of CRs, the "Primordial Vectors (PVs)" in "Pure Being," though carrying "relational propensities," are latent and not directly identifiable. The "Dependency Paths (DPs)" between them are also mere latent possibilities.

The appearance of a CR, through its formed "defining field" (see section 3.5.1), makes the "selective" (more accurately, "responsive") activation and organization of DPs possible. Those PVs compatible with the "commonality" represented by the CR are more easily activated as specific DPs and organized within the framework defined by the CR.

In this way, the originally diffuse, unidentifiable PV potentiality begins to transform, through the CR as a "catalyst" and "organizing core," into an identifiable, structured DPs network. This DPs network is precisely the basic fabric of "Relational Reality" in *Relatedness Theory*.

The birth of a CR, therefore, is not only the appearance of the first "structure" but also initiates a chain reaction for the large-scale transformation and evolution of the entire cosmos from pure potentiality to "Relational Reality" that we can experience (or at least theoretically deduce). It opens the initial "sluice gate of possibility" for the subsequent emergence of all more complex physical, chemical, biological, and even cognitive phenomena.

In summary, the direct historical consequence of CSAM—the birth of the first Commonality Reference (CR)—plays an irreplaceable, pivotal role of linking the past and the future in the cosmic evolutionary narrative of *Relatedness Theory*. It is both the first milestone of "Pure Being's" potentiality spontaneously breaking its initial symmetry and the logical starting point and ontological cornerstone for all subsequent structured existence, orderly evolution, and meaning generation. Without this first "fire of existence" ignited by CSAM, the cosmos might have remained forever silent in the eternal "night" of infinite potentiality.

3.5 The Post-CSAM Era: From the "Defining Field" of CRs to Identifiable Relational Networks Demarcated by "Pure Nothingness"

The successful operation of the Commonality Self-Activation Mechanism (CSAM) culminates in its landmark product: the birth of the first (or first batch of) stable "Commonality Reference(s) (CR)." However, the structured evolution of the cosmos does not halt here. An isolated CR, no matter how internally self-consistent, is insufficient to constitute the "Relational Reality" we experience, which is replete with complex interactions and diverse phenomena. The true significance of a CR lies not only in its own emergence but, more importantly, in its role as the first "live piece" on the cosmic evolutionary chessboard. Its existence activates and organizes a broader "strategic configuration"—namely, the formation of more extensive "Dependency Path (DPs)" networks and the operation of these networks within specific boundaries. This process, expanding from "point-like" initial references to "web-like" Relational Reality, demarcated by the background of "Pure Nothingness," is the core theme of the "post-CSAM era."

3.5.1 The "Defining Field" of a Commonality Reference (CR) and the "Responsive Weaving" of Dependency Path (DPs) Networks

Once a Commonality Reference (CR) successfully emerges via CSAM and achieves stable existence (i.e., possesses a non-zero period of definitional power, T_CR), it does not "create" or "select" its surrounding Dependency Paths (DPs) in an active, command-like manner. Instead, *Relatedness Theory* posits that the stable existence of a CR itself naturally forms a passive, structural "Defining Field" or what might be termed a "Commonality Potential Field" within the local "Pure Being" potentiality background that it influences.

The nature of this "Defining Field" is determined by the "core commonality" solidified by the CR itself (e.g., a specific symmetry, a certain cyclical logic, an information processing mode, or an energy exchange rule). It is as if a center with specific "gravity" or "selective affinity" has been introduced into an otherwise uniform ocean of potentiality. This "field" is passive; its "force" originates from the stability of the CR's structure itself and the commonality rules it represents.

The further generation and expansion of Dependency Path (DPs) networks is precisely the process of innumerable latent "Primordial Vectors (PVs)" in the "Pure Being" background undergoing "Responsive Activation" by this CR-generated "Defining Field," and subsequently being "Responsively Woven":

A CR establishes local commonality standards and a frame of reference, forming a "Defining Field": The stable existence of a CR means that the specific commonality standard and operational rules it represents are stably manifested and established in that local region. This established "commonality standard" changes the "rules of the game" or "probability landscape" for PVs in that region to be activated as DPs. It makes potential relations that are "compatible" with or can "resonate" with the CR's core commonality more easily "ignited" and maintained.

"Responsive Activation" of PVs—from potentiality to specific connection: Within the "Defining Field" of a CR, innumerable PVs in a state of potentiality within "Pure Being" continue to undergo faint random fluctuations. However, when a certain PV (or a small group of PVs) whose carried "potential commonality label" (i.e., its "relational propensity") happens to match, be compatible with, or be able to resonate with the core commonality standard of the CR's "Defining Field," the probability of this PV being "stabilized" from background fluctuations and entering a state of sustained activation (transforming into a node or segment of a DP) significantly increases. This activation is a spontaneous "response" of the PVs to the local "commonality environment" created by the CR, rather than a "coercion" by the CR.

The mechanisms of matching/compatibility/resonance can be diverse, for example:

Energy/Stability Preference: If a CR is considered a "commonality potential well," then PV combinations (forming DPs) that, once activated, can better integrate into this "potential well" structure (i.e., are more self-consistent with the CR's commonality rules) will be more stable.

Information Consistency/Enhancement: If a CR represents a certain information pattern or processing rule, then those PVs (DPs) that, once activated, can produce information flows consistent with that pattern or effectively processed by that rule will be "confirmed" and strengthened.

Dynamic Resonance/Synergy: If a CR possesses a certain characteristic dynamic rhythm or operational mode, those PVs (DPs) that, once activated, can resonate or operate synergistically with it will be more easily integrated and maintained.

"Responsive Weaving" of DPs networks—from connection to preliminary structure: Single or few "responsively activated" DPs, under the continuous influence of the CR's "Defining Field" and their mutual interactions based on their own "relational propensities" (the commonality labels of PVs), will be further "woven" into a more extensive, interconnected DPs network.

This "weaving" process is also "responsive": the connection modes, connection strengths, and formed topological structures of DPs all tend to conform to the core "commonality standard" defined by the CR. Connection patterns compatible with this standard are more easily formed and stabilized, while incompatible ones are difficult to maintain or are marginalized.

In this way, a large number of DPs are organized, forming a dynamic network expanding around the CR, possessing specific structural and functional propensities. This network constitutes the preliminary "actual structure" and operational basis of the "Relatedness System (RS)" or "Relatedness Level (RL)" defined by that CR.

This process strictly adheres to non-teleology: the CR's "Defining Field" does not possess an "intention" to construct a specific network, and the "responsive activation" of PVs is also a spontaneous behavior based on probability and compatibility. However, its overall effect is the "growth" of a DPs network with specific organizational principles around a CR in an originally potentially homogeneous region of potentiality.

3.5.2 The Identifiability of DPs Networks and Relative Entities (REs): Indirect Presentation and the Starting Point of Cognitive Construction

Although the "Defining Field" of a CR gives rise to the formation of a DPs network, this network itself, as well as the individual DPs constituting it, and even the more fundamental PVs, are typically not directly perceivable objects for any finite observer (including ourselves, as a cognitive Relatedness System). We cannot "see" a pure "Dependency Path" or an isolated "Primordial Vector."

So, how do we identify and understand this "Relational Reality" constituted by DPs? *Relatedness Theory* posits that this occurs through a process of indirect presentation and cognitive construction:

Dependency Path (DPs) networks are manifested and identified through "Relative Entities (REs)":

Within the framework of a specific CR (which defines projection rules and the existence basis), those relatively stable, recurrent relational patterns or structures within the dynamic DPs network that possess distinguishable boundaries will "emerge" and be identified as "Relative Entities (REs)."

REs are the "things," "objects," "particles," "concepts," etc., of our experiential world. They are not independently existing entities but "projections" or "stable excited states" of the underlying DPs network within a specific CR context. All their attributes and meanings originate from their position and mode of interaction within the relational network, and from the CR that defines them.

Therefore, we do not directly "perceive" the DPs network itself, but rather perceive and identify those Relative Entities (REs) stably generated by this network under a specific CR.

Indirectly inferring the existence and nature of the DPs network through the relations between REs:

We further, by observing and analyzing the interactions, interrelations, patterns of change, and the "distance" or "influence" between these identifiable REs (these are higher-level, macroscopic relations mediated by underlying DPs), indirectly infer the existence, topological structure, and dynamic characteristics of the more fundamental DPs network that supports these phenomena.

For example, we observe the Sun (an RE) exerting gravitational influence (a macroscopic relation) on the Earth (another RE), thereby inferring the existence of "Dependency Paths" transmitting gravitational influence between them (manifested as spacetime curvature in General Relativity, and possibly corresponding to more fundamental DPs in the deeper models of *Relatedness Theory*).

The starting point of cognitive construction:

This emergent process from an unidentifiable DPs network to identifiable REs and their relations constitutes the most basic

informational input and phenomenal basis for any cognitive activity to unfold.

A cognitive subject (itself a complex RS, possessing its internal cognitive CRs) constructs internal models of the world and subjective experiences precisely by interacting with these REs (defined by external physical or social CRs) and their relations in its environment (via various DPs, such as sensory input), and by processing, organizing, and □□□□ (Annotation: '□□□□' or '□□□□' means 'to endow with meaning' or 'to assign meaning.' 'Assigning meaning' might imply a more active, conscious process, while 'endowing with meaning' can be more passive or structural. Given the non-teleological stance, 'endowing' or 'imparting' meaning through the CR framework seems more appropriate than 'assigning.' Using 'imparting meaning to' for now.) these interactive informations within the framework of its internal cognitive CRs.

Therefore, although the DPs network is the fabric of "Relational Reality," it must pass through the "intermediary" of REs to enter our cognitive horizon. REs are the bridge connecting deep Relational Reality with the apparent phenomenal world and the cognitive subject.

This mechanism profoundly reflects the epistemological stance of *Relatedness Theory*: our grasp of reality is always indirect, constructive, and deeply shaped by our own (and our objects of study's) Commonality References (CRs).

3.5.3 "Pure Nothingness" as the Boundary of a Relatedness System (RS): The Crucial Demarcation from Infinite Potentiality to Finite Manifestation

After CSAM successfully gives rise to the first CR, and this CR, through its "Defining Field," engenders a DPs network and identifiable REs, a crucial question follows: is this structured region organized by the CR (which we call a "Relatedness System," RS, or "Relatedness Level," RL) infinitely extended, or does it have boundaries? If the potentiality of "Pure Being" is infinite, and the number of "Primordial Vectors (PVs)" is also infinite, how can any manifested RS maintain its finitude and uniqueness without being submerged or generalized by infinite potentiality?

The core insight of *Relatedness Theory* regarding this is: the boundary of any Relatedness System (RS) defined and organized by a specific CR is determined by the "range of definitional power" of that CR; beyond this boundary lies "Pure Nothingness (PN)" relative to that RS.

This "Pure Nothingness" is not absolute nothingness, but the infinite potentiality within "Pure Being" that has not been activated, organized, and incorporated into the structure of the current, specific RS by its core CR.

This concept is crucial for understanding how *Relatedness Theory* handles the relationship between infinity and finitude, ontology and cognitive operation:

The range of a CR's definitional power demarcates the boundary of an RS:

The "definitional power" of a CR (whether SRO, CRO, or ARO) or the range of influence of its "Defining Field" is not infinite. It is constrained by multiple factors, including the CR's own stability (T_CR), the nature of its core commonality, and its competition or interaction (via the BSO mechanism) with other potential or manifested CRs.

This effective "range of definitional power" constitutes the relative boundary of the "Relatedness System (RS)" organized by that CR. Within this boundary, the CR's rules are dominant, and DPs and REs primarily follow its commonality standards; beyond this boundary, the CR's influence rapidly diminishes or is superseded by the influence of other CRs, and the PVs there, relative to this RS's CR, are in an "unactivated" state of "Pure Nothingness."

"Pure Nothingness" as the operational boundary of an RS:

This boundary constituted by "Pure Nothingness" renders any specific RS operationally finite and analyzable. Although the ontological potentiality of "Pure Being" is infinite, and the types and number of PVs are also infinite, and even PVs themselves might possess infinite internal nested structures, for a specific RS defined by its core CR, the "effective PVs" upon which its internal operations depend have been "truncated" and "screened" by that CR's organizational capacity and "commonality standards."

A CR is like a "lens" with a specific "resolution"; it can only "focus" on and "organize" those PV potentialities that match its "focal length" and "photosensitive characteristics" (i.e., its core commonality). Those PVs that are too "fine-grained" (internal nesting of PVs far exceeding its resolution) or too "grand" (potentiality patterns requiring higher-order CRs to organize) or "incompatible with its commonality," all belong, for this specific CR and the RS it defines, to the external background of "Pure Nothingness."

The key mechanism for avoiding definitional generalization and theoretical collapse:

It is precisely this mechanism of "finite definitional power of CRs" and "relative boundaries of Pure Nothingness" that allows *Relatedness Theory* to acknowledge the infinite potentiality of "Pure Being" while simultaneously avoiding the risk of complete definitional generalization and loss of operationality due to infinite nesting or infinite relatedness.

In any specific theoretical analysis or model construction, we always (consciously or unconsciously) select one or a set of specific CRs as our frame of reference and the starting point/boundary of analysis. This selection itself limits the scope of "existence" we discuss, the level of "basic units," and the effective scale of "interaction."

Within this "finite world" demarcated by CRs and surrounded by "Pure Nothingness," the various concepts of *Relatedness Theory* (such as PV, DP, RE, RS, EEP, EEA, etc.) acquire relatively clear, operable meanings and specific dynamic significance.

Dynamic boundaries and open systems:

It needs to be emphasized that this RS boundary defined by "Pure Nothingness" is not a fixed, physical "barrier," but a dynamic, permeable interface. An RS, through its boundary, engages in continuous exchange of matter, energy, and information with the external "Pure Nothingness" (other unorganized potentialities, or adjacent other RSs). This is an important aspect of the "Global Bidirectional Self-Organization (BSO) mechanism" and a manifestation of system openness.

When an RS's core CR evolves or reconstructs due to the "Existence-Evolution Paradox (EEP)" (a transition along the "Existence-Evolution Axis (EEA)"), its "range of definitional power" will also change accordingly, leading to the contraction, expansion, or reshaping of the RS's boundary. This means the boundary between an RS and its "Pure Nothingness" background is also dynamically evolving.

In summary, "Pure Nothingness," as the boundary of a Relatedness System (RS), is the crucial demarcating mechanism in *Relatedness Theory* for transitioning from infinite ontological potentiality to finite, operable, identifiable structured existence. It profoundly embodies the relativity, context-dependence, and hierarchical nature of existence, and enables *Relatedness Theory*, while maintaining its philosophical depth, to retain the necessary precision and operationality

for its theoretical construction and potential future scientific applications.

3.6 Chapter Summary: Commonality Self-Activation—The Genesis Symphony of the Cosmos from Absolute Potentiality to Structured, Demarcated, and Identifiable Relational Reality

This chapter has thoroughly elucidated the Commonality Self-Activation Mechanism (CSAM), which holds a central position in *Relatedness Theory*. As the ontological first-push link for the cosmos's transition from the absolute potentiality state of "Pure Being" to structured, distinguishable "existence," the significance of CSAM cannot be overemphasized.

We revealed that CSAM is not a singular, linear process but a subtle dual-path synergistic mechanism:

First, through "Superpositional Emergence," based on the accumulation of quantity, statistical effects, and the convergence of potentiality density or influence intensity, preliminary, temporary "information foci" or "seed foci" are generated from the random fluctuations of "Pure Being." This process was vividly illustrated through the nested insights of "light beam convergence" and "string art." It achieves the transition from "completely undifferentiated" to "preliminarily differentiated," and through superposition effects, generates "new information," providing the "stage" and "candidate locations" for subsequent, more stable structural formation.

Subsequently, in these "preheated" regions or any other areas where PV interactions are frequent and conditions are met, through "Entangled Stabilization," based on the potential "structural commonality" (such as cyclical dependency, complementary cooperation, etc.) between PVs and their interaction, via a dynamic process of "positive feedback and relational lock-in," PVs mutually "entangle" to form dynamically stable closed-loop structures or network modes with intrinsic organizational principles and self-sustaining capabilities. This is the final formation of the first truly meaningful stable structure: the Commonality Reference (CR). This process acts like a "fixative," transforming preliminary foci into existential cornerstones with definite commonality content and dynamic resilience.

The entire operation of CSAM strictly adheres to the fundamental characteristics of non-teleology, pure self-organization, and probabilistic genesis. It requires no external design or intrinsic "intention," relying solely on the infinite potentiality of "Pure Being," its intrinsic random

fluctuations, and the "potential commonality rules" carried by "Primordial Vectors (PVs)," to spontaneously and mechanistically accomplish this feat.

The direct historical consequence of CSAM is the birth of the first Commonality Reference (CR). This not only breaks the (pre-structural) symmetry of "Pure Being" but, more importantly, establishes the "Existence Basis," providing the initial "fulcrum of order" and "framework of meaning" for all subsequent structured existence (such as "Dependency Path (DPs)" networks, "Relative Entities (REs)," "Relatedness Systems (RSs)") to be generated and defined.

In the "post-CSAM era," a formed CR, through its passive, structural "Defining Field" or "Commonality Potential Field," causes PVs compatible with its commonality standards to be "responsively activated" and organized or "woven" into a broader DPs network, forming a preliminary "actual structure." However, these DPs networks themselves are not directly perceivable; they need to be indirectly "perceived" or "identified" through the stable patterns—"Relative Entities (REs)"—projected under a specific CR and their relations. This is the foundation for subsequent cognitive activities to unfold.

Crucially, any Relatedness System (RS) defined and organized by a specific CR is bounded by that CR's "range of definitional power"; beyond this boundary lies "Pure Nothingness" relative to that RS. This ensures that for a specific RS, the "effective PVs" its internal operations depend on are "truncated" and "screened" by the CR's capacity, thus avoiding the definitional generalization and theoretical collapse that could result from the infinite nesting of "Pure Being's" potentiality, and guaranteeing *Relatedness Theory's* operationality in specific analyses while acknowledging ontological infinity.

In summary, the Commonality Self-Activation Mechanism (CSAM) depicts a magnificent genesis symphony of the cosmos transitioning from the silent sea of absolute potentiality, through intrinsic self-organizing dynamics, to the emergence of the first "existential coordinate system" (CR), and further giving rise to the fabric of identifiable "Relational Reality" demarcated by the boundary of "Pure Nothingness." It is not only the core mechanism by which *Relatedness Theory* explains the cosmos's "from 0 to 1" transition but also lays an incomparably solid theoretical foundation for subsequent chapters to delve into the nature of "Relative Entities," the construction of "Relatedness Levels" and "Relatedness Systems," and the grand tableau of the entire cosmos evolving along the

"Existence-Evolution Axis (EEA)" driven by the "Existence-Evolution Paradox (EEP)."

Chapter 4: Commonality Reference (CR)—The Emergent Order, Referential Cornerstone, and Evolutionary Core of "Relational Reality"

4.0 Introduction: From the Chaos of "Pure Being" Potentiality to the Question of Order in "Relational Reality"—The Ontological Status and Exploratory Program of CR

4.0.1 Review and Transition

The sole ontological cornerstone of the entire theoretical exploration of *Relatedness Theory* is "Pure Being." "Pure Being" is an infinitely rich potentiality field that encompasses all possibilities and is intrinsically eternally dynamic. From this infinite potentiality of "Pure Being," we logically distinguish "Primordial Vectors (PVs)." These PVs are not substantial particles in the traditional sense but serve as fundamental distinguishable units of potentiality, each carrying the most fundamental "inherent necessary propensity"—that is, its unique "way or potentiality of existence and interaction"—as well as "bidirectional potential infinite extensibility," which signifies the principled infinite openness of its potential range of relatedness and influence.

It is precisely these "inherent necessary propensities" and "bidirectional potential infinite extensibility" of PVs that constitute the ontological source of the "Global Bidirectional Self-Organization (BSO) mechanism"—this fundamental organizing principle that permeates the cosmos of *Relatedness Theory* and serves as the universal interactive logic of PVs. BSO is pre-existent and universal; it drives the initial, most universal interactions and the germination of relations from "Pure Being's" potentiality.

However, a core question then emerges: under the universal operation of BSO, how does the initial, identifiable, relatively stable structural order, and the operational rules defining this order, emerge from the undifferentiated potentiality of "Pure Being" or the initial, possibly still unstable, interactions of PVs? What constitutes the crucial bridge from universal "relational possibility" to specific, referable "Relational Reality"? In short, whence comes the order of the cosmos?

4.0.2 The Introduction of "Commonality Reference (CR)": As the Hub for the Emergence of Order and Generation of Meaning

To answer this series of fundamental questions regarding the origin of order and the establishment of reference, *Relatedness Theory* introduces the concept that occupies a central pivotal position in its entire theoretical edifice—the "Commonality Reference (CR)." The fundamental role of a CR is to explain and embody the "emergence of order," the "establishment of rules," and (under specific conditions) the "generation of meaning" in the cosmos.

Before elaborating on CR in depth, several core positions it holds within the ontological framework of *Relatedness Theory* must first be established and repeatedly emphasized:

1. Strict Non-Teleology: The emergence of a CR, the rules it embodies, and its subsequent operation do not possess any presupposed goal, intrinsic "intention," or "directionality" pointing towards any specific endpoint. All its "functions" and "effects" are the natural, non-teleologically directed consequences of its existence as a specific relational structural pattern and its being referred to.

2. Synchronous Generation of CR and Core DPs: The emergence of a CR does not occur upon a pre-existing, mature "Dependency Path (DPs)" network. On the contrary, the formation of a CR and the activation and stable lock-in of its core DPs, which constitute its "skeleton," are two inseparable aspects of the same self-organizing process. A CR is the manifestation of the stable structural pattern of its core DPs, and also the reference by which these core DPs are identified and endowed with specific "rule" significance.

3. Non-Substantiality and Passive Referentiality of CR: A CR is by no means a pre-existing "entity" in the traditional philosophical or physical sense; it is not a "thing" that can be isolated or constituted by some special "substance." Nor is it an "agent" or "control center" possessing active "will" or "capability." All "influence" and "action" of a CR originate from its being passively, yet structurally and necessarily, referred to in other relational processes driven by the "Global Bidirectional Self-Organization (BSO) mechanism," as a stable relational structural pattern embodying specific commonality rules.

4.0.3 Core Exploratory Path of This Chapter

The Commonality Reference (CR) occupies a central position in *Relatedness Theory*; its ontological positioning possesses profound, non-substantial, "relation-based" characteristics. Understanding the complex essence of CR is crucial for grasping the entire theory. Therefore, this chapter will conduct a comprehensive and in-depth discussion of it from the following main aspects:

Profoundly expound the ontological origins of CR and its emergent mechanism from the universal interaction of PVs to stable reference.

Systematically analyze the fundamental referential effect of CR (and its inherent "identifiability threshold"): how it, as a "referential cornerstone," passively yet necessarily shapes the orderly tableau of "Relational Reality."

Detail the hierarchical nature of CRs: SRO, CRO, ARO as CR systems of different scopes, degrees of abstraction, and their interactions.

Preliminarily explore the dynamic lifecycle of CR: its role as a core focus of the "Existence-Evolution Paradox (EEP)" and its evolutionary propensity on its "Existence-Evolution Axis (EEA)" (laying the foundation for subsequent chapters).

Reveal the profound philosophical implications of CR: its reshaping, according to *Relatedness Theory*, of our understanding of cosmic order, laws, meaning, and complex phenomena.

4.1 Ontological Origins and Emergent Mechanism of CR: From the Interactive Logic of PVs to Self-Organized Generation of Stable Reference

The Commonality Reference (CR), as the core concept in *Relatedness Theory* that embodies specific "commonality rules," defines "existence basis," and serves as a "referential cornerstone," does not arise ex nihilo nor is it endowed by external forces. Rather, it is deeply rooted in the intrinsic characteristics of the most fundamental constituent units of "Relational Reality" ("Primordial Vectors," PVs) and their universal interactive logic (the "Global Bidirectional Self-Organization mechanism," BSO), and emerges spontaneously through specific dynamic processes (the "Commonality Self-Activation Mechanism," CSAM, as a concentrated manifestation of BSO in the structural origin phase).

4.1.1 BSO as the Universal Dynamic Background for CR Emergence and the Rule Potentiality of PVs' "Inherent Necessary Propensity"

As we detailed in Chapter 12 and re-emphasize here, the ontological status of the "Global Bidirectional Self-Organization (BSO) mechanism" is fundamental. It directly originates from the "bidirectional potential infinite extensibility" and "inherent necessary propensity" of "Primordial Vectors (PVs)" and the "logical genesis" of their interaction against the background of "Pure Being's" eternal intrinsic fluctuations. BSO is a foundational, universal organizing principle that pre-exists any specific "Commonality Self-Activation Mechanism (CSAM)," "Commonality Reference (CR)," or "Dependency Path (DPs)."

Under the continuous perturbation of "Pure Being's" eternal intrinsic fluctuations, innumerable PVs engage in universal, continuous interaction based on their "inherent necessary propensities." This most primordial BSO interaction is not entirely random collision. On the contrary, due to the differences in PVs' "inherent necessary propensities" and the (potential) "matching," "complementarity," or "synergy" in specific combinations, certain combinations of PV "propensities" are more likely than others to influence each other during BSO interactions, or more likely to form temporary, local "Dependency Path (DPs)" connection patterns or "associative combinations." These DPs connection patterns, which are relatively easier to form and maintain, can be

regarded as the initial germination of the cosmic "relational grammar," the most primordial basis from which "potential commonality rules" are "co-woven" and "screened" out from the most fundamental interactive logic of PVs. The continuous operation of BSO, like countless invisible "hands" weaving relations on the potentiality web of "Pure Being," gradually "refines" and "manifests" those "rule clues" or "structural propensities" possessing the greatest intrinsic stability and organizational potential within this complex, dynamic weaving process. It is precisely these nascent "commonality rules," gestated by BSO from the most fundamental characteristics of PVs, that lay the ontological and dynamic foundation for the subsequent emergence of CRs.

4.1.2 CSAM as a Specific Manifestation of BSO in the Origin Phase of CR: The Synchronous, Probabilistic Birth of the First CR and its Core DPs

The "Commonality Self-Activation Mechanism (CSAM)" can be profoundly understood as a specific form of manifestation and dynamic process of the "Global Bidirectional Self-Organization (BSO) mechanism" during the crucial transitional stage when the DPs network of "Relational Reality" (or, against the background of universal PV interaction) moves from a relatively disordered or diffuse state towards the emergence of the first (or a new batch of) stable Commonality Reference(s) (CR) that can serve as a reference for subsequent evolution. The positioning as an "ontological first-push link" accurately describes the key role of CSAM in the origin of cosmic structure. CSAM specifically describes how the first CR is "solidified" from the universal interaction of PVs and becomes an identifiable "logical origin point." This emergent process can be conceptually divided into two interrelated and possibly iterative stages, both of which are specific operational modes of BSO:

1. "Superpositional Emergence": In the continuous, universal interaction process of PVs driven by BSO (the basis of their interaction being their respective "inherent necessary propensities" interacting under the fluctuations of "Pure Being"), due to statistical convergence effects (e.g., certain types of PVs, due to mutual attraction or "resonance" of their "inherent necessary propensities," temporarily increase in density in local regions due to random fluctuations) or temporary, constructive "dynamic resonance" between certain PV "relational propensities" (in an abstract sense, meaning their interaction modes can mutually amplify or stabilize), some temporary, possibly not yet fully stable "potentiality density peak regions" or "seed foci" may

probabilistically form within the vast potentiality network of "Relational Reality." The core characteristic of these "potentiality density peak regions" is that the "activation potential" of PVs, the "intensity" of information interaction, or some related "organizational metric" in that region is significantly higher than the surrounding average background level. These "peak regions" themselves are not yet ordered, stable CRs, but due to their statistical salience or temporary enhancement of influence intensity, they break the (relative) uniformity of the "Pure Being" potentiality background (or the initially formed DPs network), like temporary "vortex centers" accidentally formed in a chaotic water flow. They provide possibility and potential "candidate locations" or "excitation centers" for the subsequent "manifestation" of more specific "commonality rules" and the "solidification" of more stable CRs (i.e., the final formation of CRs), signifying an opportunity for some latent organizational principle to potentially "condense" there. These "seed foci," due to their statistical uniqueness, may already possess preliminary CR characteristics, capable of attracting and organizing surrounding PVs as references.

2. "Entangled Stabilization": Once the "seed foci" provided by "Superpositional Emergence" (or any other region where PV interaction becomes unusually frequent and concentrated due to BSO operation) appear, if there exists within this region a group or multiple groups of PVs (or the DPs connection patterns they initially form) that happen to embody some latent "structural commonality" capable of forming self-consistent feedback, stable lock-in, or synergistic operation (these "structural commonalities" themselves might be the manifestation of "potential commonality rules" gradually clarified and stabilized by BSO in early PV interactions based on the matching and screening of their "inherent necessary propensities"—for example, the "relational propensities" of certain PVs logically supporting each other to form cyclical dependency, functionally complementing each other to form stable synergy, or jointly satisfying some deeper constraint condition originating from "Pure Being" potentiality rules), then under the continuous action of BSO, these PVs (or the DPs network patterns they constitute) possessing "structural commonality" may be rapidly strengthened and "solidified" through a dynamic mechanism of "positive feedback and relational lock-in."

This process of "relational lock-in" or "entangled solidification" means that the specific interaction mode of this group of PVs, or the

connection method and interaction rules of the DPs formed between them, "wins out" (this is a dynamic stabilization screening, not a purposeful selection) from numerous temporary, unstable possibilities, and is "solidified" into a relatively persistent relational structural pattern with specific abstract geometric topology or dynamic stability—this is the first (or first batch of) Commonality Reference(s) (CR). This CR can stably exist and become the referential cornerstone for the subsequent evolution of "Relational Reality" precisely because, in its formation process, it centrally embodies and stably solidifies a specific set of "commonality rules" collectively "selected" and "maintained" by the interaction of PVs in that region. These "commonality rules" are thus embedded within the structure and dynamic characteristics of this CR.

The absolute synchronicity and inseparability of CR emergence and initial core DPs formation: A profound understanding of CR's emergent mechanism requires recognizing that its formation process and the formation of the initial, stably locked-in "Dependency Paths (DPs)" (i.e., activated connections between PVs carrying specific "relational propensities") constituting its core structure are two mutually supportive, inseparable aspects of the same self-organizing process. A CR does not emerge after some pre-existing, isolated DPs are formed, and then proceed to "organize" them; nor does a CR exist as an abstract "set of rules" prior to any DPs. On the contrary, the emergence of a CR is itself accompanied by, and realized through, the synchronous formation and stable lock-in of those key DPs that constitute its core structure. These core DPs are the "structural skeleton" and "relational carrier" through which the CR "condenses" from the universal interaction of PVs. Therefore, the "reality" of a CR lies in the specific, relatively stable, referentially significant organizational form achieved by these core DPs locked in during its formation, and the set of "commonality rules" intrinsically embodied and solidified by this organizational form. The emergence of a CR is the completion of the structurization and regularization of its core DPs network. The "position" of a CR (its abstract logical localization within the "Pure Being" background) is jointly determined by the core PVs constituting it and the initial DPs they form.

4.1.3 Re-exploration of the Essence of CR: As a Stable Embodiment of "Commonality Rules," its Role as a Passive Reference, and its Inherent "Identifiability Threshold"

Based on the aforementioned emergent mechanism of CR, its core essence can be further profoundly grasped:

1. CR as an embodiment of "commonality rules" and an auxiliary illustration of "structural focus": The essence of a Commonality Reference (CR) is a stable relational structural pattern. This pattern, in its formation process, necessarily and intrinsically embodies and solidifies a specific set of "commonality rules." It is precisely because a CR can stably carry these rules and thus form a relatively unique, effectively distinguishable organizational core or logical origin point within the network of "Relational Reality," that we can, from the perspective of its structural characteristics and functional effects, auxiliarily understand it as a "structural focus of (commonality) rules." However, this is merely a descriptive supplement to the core connotation of CR; the formal name and ontological status of CR lie in its being a "Commonality Reference" itself—it carries and embodies rules, and becomes a reference due to its stable existence.

2. Non-substantiality and no intrinsic attributes: A CR is not a "thing" that can be isolated or constituted by some special "substance." Its "reality" lies in its continuous effectiveness as a stable "relational pattern" or "organizational principle" (i.e., the commonality rules it embodies). The ultimate "material" constituting a CR is still the potentiality of "Pure Being" (manifested through the "inherent necessary propensities" of PVs and the DPs connections formed between them), but the "identity" and "reality" of a CR lie entirely in the logical structure, organizational principles of the "commonality rules" it embodies, and the "form" in which they can be stably followed and effectively operated within a specific DPs network. Its so-called "stability," "complexity," etc., are descriptions of the characteristics exhibited when the DPs network pattern embodied by this CR operates under the reference of specific rules, rather than traits "possessed" by the CR as an "entity."

3. Passive referentiality and no determinative capacity: A CR does not possess any active "determinative capacity," "control capacity," or "creative capacity" to "command," "coerce," "select," or "shape" the operation of the DPs network. Nor is it a "force" independent of the generation and operation process of "Relational Reality" that can actively exert influence or "define" rules. On the contrary, it is the "Dependency Path (DPs)" network itself, driven by its intrinsic "Global Bidirectional Self-Organization (BSO) mechanism," that self-references, self-constrains, self-organizes, and self-evolves in accordance with the set of

"commonality rules" embodied by this CR, which it has collectively "woven" and stabilized. A CR is the emergence of order (manifested as a stable CR), not the active creator or imposer of order. All its "influence" stems from its passive role as a "referential cornerstone."

4. Inherent "identifiability threshold": Any Commonality Reference (CR) necessarily possesses an inherent "identifiability threshold." This threshold is an intrinsic component of the CR's "definitional power," determining its effective range of reference, the conditions under which "Primordial Vectors (PVs)" and "Dependency Paths (DPs)" can be activated and organized into a "Relatedness System (RS)" within its context, and the minimum "signal strength" or "pattern clarity" for subsequent "Relative Entities (REs)" to manifest and be identified. This threshold is dynamic and closely related to the hierarchy and characteristics of the CR to which it belongs. It is a key parameter defining the boundary between "visible" phenomena and the potentiality "veiled" by relative "Pure Nothingness."

5. Non-uniqueness of CR: Given the infinite potentiality of "Pure Being" and the inherent probability, path dependence, and sensitivity to initial fluctuations of the "Global Bidirectional Self-Organization (BSO) mechanism" and "Commonality Self-Activation Mechanism (CSAM)" processes, the emergence of CRs in the cosmos is not a singular, deterministic event leading to a unique optimal solution. Within the vast network of "Relational Reality," it is entirely possible for innumerable potential, distinct CR prototypes to emerge simultaneously or sequentially, in different regions or at different levels, through the universal operation of BSO and CSAM. However, only those whose embodied "commonality rules" and organizational efficacy as references achieve a specific "identifiability threshold" (in terms of stability, range of influence, distinguishability, etc.) through long-term BSO evolution and "dynamic screening" (i.e., those CRs that are more stable and can more effectively manage their internal EEP contradictions are more likely to persist) can become what we typically discuss as Commonality References (CRs) with ontological significance.

4.2 The Fundamental Referential Effect of CR: How DPs Networks, Driven by BSO, Exhibit Order and Organization Under the Reference of CR (and its Inherent "Identifiability Threshold"), and Define the Tableau of "Relational Reality"

A Commonality Reference (CR), as a stable relational structural pattern embodying specific "commonality rules" and emerging from the self-organizing interaction of "Primordial Vectors (PVs)," is not itself an active "agent" or "control center." A CR does not "issue" commands, nor does it actively "shape" or "select." However, once a CR stably exists, its own unique structural characteristics and the "commonality rules" it solidifies inherently possess a specific "scope of referential efficacy" and an "identifiability threshold."

It is precisely within this referential framework, passively yet necessarily established by the CR, that the "Dependency Path (DPs)" network, which might otherwise remain in continuous flux, is able, under the drive of the "Global Bidirectional Self-Organization (BSO) mechanism," to exhibit orderly structure and stable operational modes, and to be demarcated from the relative "Pure Nothingness (PN)" of the potentiality background. This makes possible the identifiable "phenomenal world" (constituted by "Relative Entities, REs"). The so-called "function" or "effect" of a CR is profoundly manifested as the orderliness and specification necessarily exhibited by the overall behavior of the PVs/DPs network when it refers to the CR (and its inherent "identifiability threshold") and operates via BSO.

4.2.1 Laying the "Existence Basis": How a Central Commonality Reference (CRO) Provides the Core Reference and Possibility Framework for the Stable Organization of DPs Networks and the Manifestation of REs within the "Relatedness System (RS)" it Defines.

The emergence of a Commonality Reference (CR), particularly a "Central Commonality Reference (CRO)" that defines a "Relatedness System (RS)" possessing holistic identity and operational logic, marks the establishment of that RS's "existence basis." This means that within the effective "scope of reference" of that CRO (and its inherent "identifiability threshold"), the organization of the "Dependency Path (DPs)" network

and the manifestation of "Relative Entities (REs)" acquire the necessary referential framework and stability conditions.

1. A CRO provides the core reference for the "responsive activation" and "responsive weaving" of DPs networks within an RS: An already stably emerged CRO, by virtue of the specific "commonality rules" it embodies and its inherent "identifiability threshold," provides the core referential framework and organizational principles for the subsequent "responsive activation" and "responsive weaving" of DPs networks within its RS. Although the CRO does not actively "select" or "command," the DPs network within the RS, driven by its inherent "Global Bidirectional Self-Organization (BSO) mechanism" (which itself pursues a certain dynamic self-consistency and stability, i.e., seeking alignment with the organizational principles represented by the established core CRO), will exhibit the following tendencies:

"Responsive Activation": Those "Primordial Vectors (PVs)" whose "relational propensities" (originating from their "inherent necessary propensities" and encoded as "potential commonality labels") are logically or structurally "compatible" with, able to "match," or capable of "resonating" with the "commonality rules" embodied by this CRO, will have a significantly increased probability of being stably activated as new DPs or integrated into existing DPs networks when perturbed by the eternal random fluctuations of the "Pure Being" background or by the activities of other DPs within the network, provided that the "intensity" or "salience" of this activation mode can reach the inherent "identifiability threshold" of that CRO. Potential activations below this threshold may still occur but are unlikely to be stably incorporated into the ordered structure referenced by that CRO, effectively being "ignored" or attributed to background fluctuations.

"Responsive Weaving": These "responsively activated" PVs (now nodes or segments of DPs) and existing DPs, under the continuous action of BSO, will (non-teleologically) tend to form DPs network structures whose connection patterns, topologies, and dynamic characteristics are more aligned with the "commonality rules" embodied by that CRO—structures that are more ordered and possess specific RS-holistic features. In this way, the DPs network, under the reference of the CRO, continuously self-organizes and "refines" its structure, thereby exhibiting orderliness and specific functional propensities relative to the potentiality background, within the scope "illuminated" by the CRO's "identifiability threshold."

2. A CRO provides the referential framework for the "projection" and manifestation of REs within an RS: "Relative Entities (REs)," as "phenomenal patterns" stably manifested from the DPs network under the reference of a specific CRO (which embodies the "projection rules" for identifying and stabilizing phenomenal patterns), their ability to be "projected" and manifested from the fluxing DPs network, and the specific form they will take and the identifiable "attributes" they will possess once manifested, depend entirely on the "projection rules" contained within that referential CRO itself (these rules being part of its "commonality rules" set) and its inherent "identifiability threshold."

3. A CRO as a "template for pattern recognition" and a "filter for phenomenal manifestation": The characteristics of a CRO and its corresponding "projection rules" act like an endogenous "template for pattern recognition" or a "filter for phenomenal manifestation." It does not actively "create" REs. Rather, its "commonality rules" themselves set a standard. Only when certain dynamic configurations or activity patterns of the underlying DPs network (the direct "precursors" of REs) happen to satisfy these standards (i.e., are highly "compatible" with or "match" the CRO's commonality rules, can form stable self-consistent structures, and exhibit sufficient "signal strength" or "pattern clarity" to reach its "identifiability threshold") are these patterns more easily and stably "manifested" at the phenomenal level of the "Relatedness System (RS)" defined by that CRO.

4. CR-dependence of "visibility": Those "precursor" patterns that are inconsistent with the CRO's intrinsic logic, or cannot form stable self-consistent structures within its "defining field" effect (referring to the passive referential sphere of influence necessarily generated by its stable relational structural pattern), or whose "manifestation intensity" falls below its "identifiability threshold," are unlikely to be "projected" as persistent REs. They may manifest as fleeting fluctuations or belong to the "background noise" at the phenomenal level (i.e., parts not "illuminated"). The "visibility" (i.e., identifiability) of REs is their natural emergence within the referential framework of a specific CRO and its "identifiability threshold."

4.2.2 The Endogenous Embodiment of "Operational Rules" and "Projection Rules": A Commonality Reference (CR) *is* the Structured Embodiment of the "Rules of the Game" within the Region of "Relational Reality" it References.

Profoundly understanding the referential effect of a Commonality Reference (CR) is key to recognizing that the so-called "operational rules" and "projection rules" within the "Relatedness System (RS)" or "Relatedness Level (RL)" referenced and defined by that CR are not, in fact, a separate set of laws independent of the CR. Rather, they are concrete manifestations and necessary logical effects of different aspects of the CR itself (as the stable embodiment of "commonality rules").

1. DPs "connection grammar" as an embodiment of CR: A CR itself inherently contains preferences and constraints for DPs connections within its sphere of influence. For example, if a CR embodies certain specific spatial geometric rules, then the DPs network formed under its reference via the BSO mechanism will naturally (in a statistical and dynamic sense) tend to exhibit connection patterns conforming to those geometric rules. If a CR embodies certain logical inference rules, then the connections of DPs representing logical relations between concepts, under the reference of that CR, will tend to follow those logical rules. The DPs network, under BSO operation, will spontaneously evolve topological structures and dynamic characteristics that conform to this "connection grammar" inherent in its dominant CR.

2. REs "manifestation rules" (i.e., "projection rules") as an embodiment of CR: As previously stated, the manifestation of REs depends on the CR's "projection rules." This set of "projection rules" is the CR's own intrinsic definition of "what constitutes an identifiable, stable phenomenal pattern." It is not a set of "instructions" written somewhere, but rather the effect of "pattern recognition and stabilization" necessarily produced by the CR's structural characteristics and its solidified "commonality rules" when faced with the dynamics of the underlying DPs network. The CR is the logical premise and structural basis for REs to "emerge" from the multifarious activities of the DPs network as "identified and stabilized" entities.

3. "Interaction laws" between REs as an embodiment of CR (as the common reference for holistic operation): Once REs manifest under the reference of a specific CR, their interactions do not follow a set of externally imposed "interaction laws" independent of that CR. On the contrary, the deeper essence of these "interaction laws" observed at the phenomenal level between REs is the collective behavior or coupling effect—observable and describable at the macroscopic pattern level of REs—necessarily exhibited by the underlying DPs network (which forms

the "precursors" of these REs) when it undergoes holistic dynamic evolution while collectively referencing the same CR (as the overall operational framework). It is the CR that stipulates the types, intensities, and consequences of possible interactions between REs under its reference.

4.2.3 Achieved Under the Reference of CR :

The existence of a Commonality Reference (CR) and its inherent "identifiability threshold" is key for "Relational Reality" to transition from potentiality to order, from unidentifiability to identifiability, and from lacking specific meaning to possessing specific contextual meaning.

1. "Responsive activation" and "responsive weaving" from PVs potentiality to an ordered DPs network: As described in 4.2.1.1, the referential effect of a CR causes PVs compatible with its rules and capable of reaching its "identifiability threshold" to be preferentially "responsively activated" as DPs, and to be "responsively woven" under BSO drive into a more ordered DPs network expanding around the CR.

2. "Projection" and manifestation from the DPs network to phenomenal-level REs (transiently stable relational patterns without intrinsic attributes): As described in 4.2.1.2 and 4.2.2, a CR's "projection rules" and its "identifiability threshold" enable specific stable patterns in the DPs network to be "projected" as phenomenal-level REs. These REs are transiently stable relational patterns without intrinsic attributes.

3. Manifestation of "difference" and the possibility of "comparison" (CR as a reference for "zero point" and "scale"): In the completely unspecified state of "Pure Being," or in a completely random DPs network lacking a dominant CR, there may not exist any clearly perceivable "differences" or "properties," due to the absence of a common basis for comparison and a standard for identification. The emergence of a CR, by providing such an endogenous, commonly followed referential standard, allows "difference" to manifest within the relational network and "comparison" to become possible, thereby laying the foundation for the generation of information and the construction of meaning. A stable CR, within its "scope of reference/identifiability threshold," provides a logical "zero point" and a comparative "scale" for various states and patterns within the DPs network. It is precisely because of this common reference inherent in the CR that various fluctuations, changes, and patterns in the DPs network can be identified as "deviations" or "differences" relative to

this "standard," thus acquiring "informational content" that can be distinguished and described.

4. Constitution of a contextual framework for "meaning generation" (CR as a reference for information "decoding" and event "evaluation"): Information and events themselves may not intrinsically carry fixed, absolute "meaning." "Meaning" is always constructed and interpreted within a specific referential context. A CR, by establishing a local, commonly followed referential framework, operational rules, and (possibly) value references, thereby imparts specific contextual meaning to the information flows and occurring events that pass through the RS (or RL) it organizes. The "meaning" of information flows input into a "Relatedness System (RS)" organized with a specific CR as its core principle is constructed during "decoding," associating, and integrating, in reference to the "commonality rules" (including its inherent "projection rules" and "identifiability threshold") embodied by that CR.

4.2.4 Demarcating an RS from Relative "Pure Nothingness": How a CR's "Scope of Reference" and "Identifiability Threshold" Dynamically "Carve Out" a "Visible," "Organized" RS from the Infinite Potentiality of "Pure Being," and Elucidating Two Reasons for PVs Being in a State of "Pure Nothingness" (Below the "Identifiability Threshold"; or their "Inherent Necessary Propensity" Not Forming an Effective "Structural Intersection" or "Commonality Rule Resonance" with the CR). The Dynamic Nature and Openness of RS Boundaries.

Any finite "Relatedness System (RS)" referenced and organized by a specific Commonality Reference (CR) exists against a broader background of "Pure Nothingness (PN)" relative to that CR (i.e., the infinite potentiality within "Pure Being" not activated, organized, and incorporated into the structure of the current CR and its "scope of reference/identifiability threshold"). The CR, with its inherent "scope of reference" and "identifiability threshold," plays a crucial role in defining the relative boundaries of the RS and in understanding its dynamic interaction with "Pure Nothingness."

1. An RS is a region of "Relational Reality," activated and organized, defined by the effective "scope of reference" (regulated by its inherent "identifiability threshold") of its core CRO:

The "boundary" of an RS is not a fixed, physical "barrier," but the outermost region where its core CRO's "effective scope of reference" can

reach. This "effective scope of reference" signifies the boundary of its rule applicability and its organizational capacity as a reference, and is regulated by its inherent "identifiability threshold." Only those PVs/DPs activities and REs patterns whose activation intensity, complexity of connection patterns, or informational salience can reach or exceed the inherent "identifiability threshold" of that CRO can be stably incorporated into the structure and operation of that RS, becoming its identifiable "constituent parts."

Therefore, an RS can be understood as: that specific region of "Relational Reality" which, against the background of "Pure Being's" infinite potentiality, is "illuminated" by its core CRO's "scope of reference," and whose internal relational activities and structural patterns' "visibility" can be stably "captured" and "organized" by the "lens parameter" of that CRO's "identifiability threshold."

2. "Pure Nothingness" is, relative to this specific RS and its CRO, the infinite potential state within "Pure Being's" potentiality that is not "referenced," activated, and organized by that CRO (according to its "identifiability threshold" and "structural intersection" principles):

Two primary reasons for "Primordial Vectors (PVs)" being in a state of "Pure Nothingness" relative to a specific CRO:

(1) Potential relational relevance to the CRO, but their activation intensity/pattern complexity is below that CRO's "identifiability threshold": These PVs, or the potential DPs/REs patterns they form, might have "inherent necessary propensities" compatible with the "commonality rules" embodied by that CRO. However, because their current activation intensity, complexity, or degree of manifestation fails to reach that CRO's inherent "identifiability threshold," they are not stably organized into that RS's ordered structure and exist at the phenomenal level in an "invisible" potential state. These PVs constitute the RS's direct, potentially activatable "proximal Pure Nothingness."

(2) Their "inherent necessary propensity" fails to form an effective "structural intersection" or "commonality rule resonance" with the "commonality rules" embodied by that CRO within the "possibility space" of "Pure Being": The intrinsic "way or potentiality of existence and interaction" of these PVs may be fundamentally incompatible or mismatched with the specific set of "commonality rules" solidified by the current CRO, or they may be too distant in the abstract "possibility space" for effective "Dependency Path (DPs)" connections—capable of

being "referenced" and organized by that CRO—to be established between them via the BSO mechanism. They are simply not included within that CRO's "scope of reference" and are even more "invisible" to it. These PVs constitute the more distant, vaster "distal Pure Nothingness," the ultimate source of the cosmos's infinite novelty, disruptive innovation, and fundamental transformation of "existence basis."

3. The dynamic nature and openness of RS boundaries: This RS boundary, demarcated by the CR's "scope of reference" and "identifiability threshold," is not a fixed, physical "barrier" but a dynamic, permeable interface. An RS, as an open system, continuously engages in (generalized) exchanges of matter, energy, and information with the external "Pure Nothingness" (be it "proximal Pure Nothingness" or "distal Pure Nothingness") through its boundary (this is an important aspect of the "Global Bidirectional Self-Organization (BSO) mechanism"). When an RS's core CRO evolves or undergoes "displacement" on its "Existence-Evolution Axis (EEA)" driven by its internal "Existence-Evolution Paradox (EEP)," its characteristics, its "scope of reference," and its "identifiability threshold" may all change accordingly, leading to the contraction, expansion, or reshaping of the RS's boundary. This means the boundary between an RS and its "Pure Nothingness" background is also dynamically evolving, filled with continuous interaction and the possibility of mutual transformation.

Through this profound understanding of CR and its inherent "scope of reference/identifiability threshold," we can not only more clearly define the relative boundaries of any finite "Relatedness System (RS)" but also understand how an RS, as an open system, dynamically interacts with its infinite potentiality background ("Pure Nothingness") and draws from it the possibilities for its evolution and innovation. This provides a key mechanistic elucidation for *Relatedness Theory's* transition from infinite ontological potentiality ("Pure Being") to finite, operable, identifiable structured existence (RS), and for explaining how these structured existences continuously evolve.

4.3 The Hierarchical Structure of CR: SRO, CRO, ARO as Reference Systems of Different Scopes, Degrees of Abstraction, and "Identifiability Thresholds," and their BSO-Driven Mutual Construction and Evolution

The Commonality Reference (CR), as a stable relational structural pattern embodying specific "commonality rules" and emerging from the self-organizing interaction of "Primordial Vectors (PVs)," is not itself a singular, flat concept. On the contrary, in the cosmic tableau of *Relatedness Theory*, CR necessarily exhibits profound hierarchy. The complexity and orderliness of the cosmos are, to a large extent, constructed and maintained through the nesting, interaction, and synergy of these Commonality References (CRs) operating at different scopes (from local "Relatedness Levels, RLs" to holistic "Relatedness Systems, RSs," and further to broader "Encompassing Backgrounds, AROs"), possessing different degrees of abstraction and different inherent "scopes of reference/identifiability thresholds." This hierarchical structure, like a ladder of cosmic order, allows for a unified, relational understanding within *Relatedness Theory*, from specific local operational rules to broad holistic background references.

4.3.1 Central Commonality Reference (CRO): As the Central Commonality Reference Defining the Holism, Identity, and Operational Reference of a "Relatedness System (RS)" (Inherently Possessing a More Macroscopic "Identifiability Threshold")

In the hierarchical reference system of *Relatedness Theory*, the "Central Commonality Reference (CRO)" is the core reference used to define and understand a "Relatedness System (RS)" that possesses holism, relative autonomy, and a specific evolutionary history. This CRO is not an "center" external to the RS that actively controls it, but rather a stable relational structural pattern embodying the RS's overall identity, primary operational logic, relative boundary, and "existence basis." It is co-woven, dynamically screened, and stably maintained by the entire "Dependency Path (DPs)" network constituting that RS (these DPs ultimately originating from the "inherent necessary propensities" of "Primordial Vectors, PVs") under the long-term, global operation of the "Global Bidirectional Self-Organization (BSO) mechanism" (which may also include the reactivation of the "Commonality Self-Activation

Mechanism, CSAM" as a specific manifestation of BSO during the RS's initial formation or at critical turning points).

It is like the embodiment of the RS's "constitutional rules" or the referential framework within which its core organizational algorithm operates stably. The CRO is the "logical center" and "identity marker" for that RS to exist as an identifiable and analyzable "whole." It also inherently possesses a relatively more macroscopic "identifiability threshold," which determines the scope and precision with which that CRO, as a reference, can effectively organize and define its RS.

The CRO endows the RS with its core characteristics as a unified whole. The "commonality rules" it embodies and its inherent, usually more macroscopic, "scope of reference/identifiability threshold" constitute the fundamental referential framework for the integration and synergistic operation of all "Specific Commonality References (SROs)" and "Relatedness Levels (RLs)" that may subsequently differentiate within the RS. The CRO, through its unique characteristics (e.g., the CRO_Self defining a "human individual" embodies rules concerning self-awareness, memory integration, and bodily boundaries), enables that RS to be distinguished from other RSs or its external "Pure Nothingness" potentiality background, thereby possessing an identifiable, relatively continuous holistic "identity."

Simultaneously, the effective "scope of reference/identifiability threshold" of the CRO largely defines the relative boundary between that RS and its external environment (including other RSs or the "Pure Nothingness" potentiality background relative to it). This CRO and the "commonality rules" it embodies are the "existence basis" upon which the entire RS it defines stably exists and operates in an orderly manner. All DPs connections, "Relative Entity (REs)" manifestations, and their interactions within the RS must ultimately (in a statistical and dynamic sense) remain compatible and consistent with the set of rules embodied by this core CRO.

4.3.2 Specific Commonality Reference (SRO): As a More Localized, Detailed Reference for a Specific "Relatedness Level (RL)" (Functional Subdomain) within an RS, Emerging Under the Referential Framework of a CRO. It Inherently Possesses a More Specific "Identifiability Threshold."

Within a "Relatedness System (RS)" governed by a more macroscopic CRO, its "Dependency Path (DPs)" network may, in certain

local regions or around specific functional dimensions, further "weave" and stabilize—through the "Global Bidirectional Self-Organization (BSO) mechanism" (which may also include local, secondary CSAM-like processes, but at this point, occurring within the context of an existing CRO's reference)—into more concrete and specialized Commonality References. These references, emerging under the CRO's referential framework and targeting a specific "Relatedness Level (RL)" (i.e., a relatively distinguishable relational subdomain within the RS, possessing a specialized operational mode and unique "phenomenal content"), which are more localized and detailed, are termed "Specific Commonality References (SROs)."

The "specificity" and "locality" of an SRO are always relative to the "commonality" and "holism" of the CRO of its encompassing RS. It is the concretization and refinement of the holistic organizational principle represented by the CRO in a specific aspect. The "commonality rules" solidified by an SRO are typically more specific and have a narrower scope of application than those of its CRO, and its inherent "identifiability threshold" may also be more refined or targeted towards specific types of DPs patterns and REs manifestations.

An SRO is the fundamental basis for its corresponding "Relatedness Level (RL)" to be identified and demarcated, and for it to exhibit its unique operational logic and specialized "Relative Entity (REs)" patterns. Within an RL, the connection preferences of DPs, activation conditions, information processing flows, as well as the manifested forms, attribute ranges, and interaction modes of REs, all primarily reflect the specifications of the "commonality rules" solidified by this SRO and its inherent "scope of reference/identifiability threshold." For example, in a biological cell RS (governed by its CRO_Cell), the mitochondria responsible for energy metabolism within it can be considered an RL. The stable SRO defining the unique structure of mitochondria, enzyme systems, and operations like the tricarboxylic acid cycle (which includes relevant biochemical reaction rules, membrane structure organizational principles, etc.), its "identifiability threshold" determines which specific molecular interactions and energy conversion processes can be identified as characteristic activities of that RL.

A complex RS is usually composed of multiple different, functionally distinct RLs (each possessing its core SRO) integrated together. These SROs and the RLs they define, like specific "functional modules" or "organizational units" within the grand system of the RS,

each operate under their specific references and "identifiability thresholds," collectively supporting the realization of the RS's overall functions.

The emergence, stability, and effective operation of an SRO must, logically and dynamically, remain compatible with the holistic organizational principles and broader "scope of reference/identifiability threshold" embodied by the CRO of its encompassing RS. The CRO provides a more macroscopic referential framework, possibility constraints, and a background for overall coordination for the formation and operation of all internal SROs. If the rules embodied by an SRO come into irreconcilable conflict with the core rules of its encompassing CRO, then that SRO will find it difficult to stably exist within that RS, or its operation will be suppressed or corrected by the CRO, or it will lead to the intensification of the RS's overall EEP contradiction.

4.3.3 Absolute/Encompassing Commonality Reference (ARO): As a More Universal Referential Framework, Logically or Factually Containing the Focal RS (and its CRO), Providing it with a Broader Operational Background, Constraint Conditions, or Shared Meaning Space, Co-woven by a Vaster DPs Network. Its "Identifiability Threshold" May Be More Abstract or Inclusive. Emphasizing the Profound Characteristics of ARO's "Interactive Constructability" and its "Multifaceted Referencing" by Internal RSs.

When we analyze a "Relatedness System (RS)" defined by its core CRO, we often find that this RS does not exist in isolation but is embedded in one or more broader "Relational Reality" backgrounds. The reference system used to describe these contexts that logically or factually encompass the focal RS, and provide it with more macroscopic operational rules, constraint conditions, resource environments, or shared meaning spaces for its existence, operation, and evolution, is the "Absolute/Encompassing Commonality Reference (ARO)."

It is crucial to understand that the "Absolute" qualifier in "Absolute/Encompassing Commonality Reference" denotes a *relative absoluteness* specific to the internal perspective of the encompassed RSs, rather than signifying an ultimate, ontologically independent, or universally unchanging cosmic entity or principle. For any given focal RS, its ARO functions as the highest-order, most encompassing referential framework *that it can effectively interact with and be defined by*, given the limitations of its own core CR's "identifiability threshold" and the

veiling effect of its relative "Pure Nothingness." From the vantage point of an internal RS, this ARO appears to exert an 'absolute' or inescapable set of constraints and defining influences, as the RS cannot 'see' or 'reach' beyond this encompassing ARO to a potentially vaster or more fundamental referential context.

However, in the broader ontology of *Relatedness Theory*, an ARO itself is usually a more grandiose RS, possessing its own core CRO (expressible as CRO_of_Encompassing_System) that defines that vaster context. Therefore, while an ARO provides an "absolute" frame for its internal constituents, it remains relative when viewed from a potentially higher-order perspective or from the ultimate standpoint of Pure Being. Even the entire observable universe, if considered as an RS_Cosmos defined by a CRO_Cosmos, is not 'absolute' in an ultimate sense within *Relatedness Theory*, as it too is a specific, manifested, and evolving configuration within the infinite potentiality of Pure Being, subject to its own EEP and EEA.

The "encompassing" or "universal" nature of an ARO is thus always understood relative to the focal RS under current analysis. It represents a more universal Commonality Reference co-woven and maintained by a vaster DPs network (possibly spanning the boundaries of multiple RSs) under the long-term operation of BSO. This ARO provides the focal RS with a "meta-context" or "background reference" that transcends its own direct boundaries. Its inherent "identifiability threshold" may be more abstract, more inclusive, or, in some cases, define the upper limit of "visibility" from which the focal RS can draw information or be influenced.

The ARO, through the more universal "commonality rules" it embodies and the macroscopic environment it demarcates, sets boundary conditions, resource supply rules, selection pressures and value references, and the possibility space for evolution for the focal RSs (and their core CROs) contained within it, and may indirectly affect their stability limits.

The key to profoundly understanding ARO is that it is not a pre-existing, fixed, unchanging background "container" or an absolute "rule promulgator" that presents a unique objective face to all internal RSs. On the contrary, the manifestation of an ARO, its specific content and meaning, profoundly depend on the continuous interaction between the various RSs (defined by their respective CROs) it contains and the construction of their respective "referential perspectives":

1.Interactive Emergence: When two or more independent (or previously weakly related) RSs (each with its core CRO) begin to establish effective DPs connections and engage in continuous interaction, their interaction itself may, through the BSO mechanism, give rise to or co-construct a new, shared ARO. This ARO is not a pre-existing "higher-level box," but rather that vaster referential context which these RSs, in the process of interaction—to establish a common referential basis (e.g., a common language, shared values, common understanding of physical laws), coordinate behavior, allocate resources, or define shared meaning spaces—collectively "weave," shape, or jointly point towards.

3.Multifaceted Referencing: Even if a seemingly "common" ARO exists, different internal RSs (through their respective CROs and inherent "identifiability thresholds") will, based on their own internal rule structures, historical experiences (EEA trajectories), information processing methods, and "existence strategies," selectively reference, interpret, and manifest different facets, different "effective rule subsets," and different "relative meanings" from the vaster "rule potentiality" background or reference system represented by the same ARO. An ARO is like a complex prism; each internal RS is like a unique ray of light, illuminating it from a different angle, thereby refracting different pictures. There is no ARO that is independent of these internal RSs and "presents a unique objective face to all members."

3.Interaction as the Reshaping of "Pure Nothingness" Boundaries and the Generation of New CRs: The interaction between RSs, and between an RS and its ARO, is not merely a passive adaptation to the ARO. It simultaneously reshapes the participating parties' cognitive boundaries regarding "Pure Nothingness" (the potentiality unactivated and unorganized by their own CRs). Interaction may activate new potentialities previously in a state of "Pure Nothingness," generate new DPs connections, and, under the synergistic effect of BSO and the "Commonality Self-Activation Mechanism (CSAM)," potentially give rise to a large number of new, temporary or persistent, SROs and CROs. These new CRs will, in turn, further define new interaction modes and possibilities, and may collectively participate in the further construction or reinterpretation of the ARO. This interactive constructability and multifaceted referencing mechanism of ARO profoundly manifests the

infinite creativity and thoroughgoing relatedness of the cosmos in *Relatedness Theory*.

4.3.4 Relative Interaction and Synergistic Evolution Between Commonality Reference (CR) Tiers: As a Profound Manifestation of the "Global Bidirectional Self-Organization (BSO) Mechanism" Among CRs of Different Tiers and their "Identifiability Thresholds" (Compatibility of Rules, Constraints, Synergy, "Bottom-Up" Emergence and Influence, "Top-Down" Reference and Modulation, and "Horizontal" Mutual Construction and Innovation).

The hierarchical structure of CRs (SRO, CRO, ARO as reference systems of different scopes, degrees of abstraction, and inherent "identifiability thresholds") is not a static, unidirectional control "pyramid" or a strict "subordination" relationship, but a dynamic rule ecosystem filled with complex interactions. This trans-tier, all-encompassing interaction and synergistic evolution of references is precisely a profound manifestation of *Relatedness Theory's* core organizational principle—the "Global Bidirectional Self-Organization (BSO) mechanism"—within the CR hierarchical structure. BSO ensures the compatibility of rules, the effective transmission of constraints, and the synergistic operation between reference objects of different tiers.

1. "Bottom-Up" Emergence and Influence of CRs (Founding and Challenging of Rules):

Foundational Role: The stable operation of lower-tier CRs (e.g., multiple SROs) and the collective effect of the RLs they organize form the basis for the formation, maintenance of stability, and display of holistic organizational function of their encompassing higher-tier CR (e.g., CRO). The effectiveness of local rules embodied by SROs and their synergistic operation collectively "weave" and support the applicability and referential power of the CRO's core rules.

Challenge and Evolutionary Drive: Simultaneously, if multiple key SROs develop increasing incompatibility with the DPs network they are situated in, or if "structural tensions" arising from rule conflicts between them converge and accumulate via the BSO mechanism, this may "bottom-up" challenge the overall applicability and stability of their encompassing CRO, even becoming one of the factors triggering a "paradigm shift" in that CRO (i.e., a "displacement" on the EEA, a

fundamental reconstruction of its core rules and "identifiability threshold").

2. "Top-Down" Reference and Constraint by CRs (Ensuring Rule Compatibility and Defining Possibility Space):

Referential Framework and Logical Compatibility: Higher-tier AROs or CROs provide a more macroscopic referential framework, requirements for logical compatibility, and constraints on the possibility space for the emergence and operation of the lower-tier CROs or SROs they contain. The formation and stability of an SRO must, to some extent, be consistent with the core organizational principles and broader "identifiability threshold" range of its encompassing CRO; similarly, the operation of a CRO must occur within the possibility space permitted by the ARO in which it is embedded.

Possibility Constraint: Higher-tier CRs, via the BSO mechanism, act like "channeling" or "boundary conditions" for the "weaving" and evolution of lower-tier CRs, ensuring that the emergence and operation of local rules do not fundamentally and irreconcilably conflict with overall organizational principles, thereby safeguarding the relative stability and coordination of the entire multi-tier reference system.

3. "Horizontal" Synergy and Mutual Construction Between CRs (Integration and Innovation of Rules):

Within the same RS defined by a CRO, different SROs, as well as different CROs under the same ARO, may also engage in complex "horizontal" interactions via the BSO mechanism.

Information Exchange and Functional Complementarity: These CRs may, through shared DPs networks or commonly influenced REs patterns, achieve information exchange, functional complementarity, and even mutual borrowing of rules and synergistic enhancement.

Mutual Construction and Innovation of Rules: Such horizontal interaction may even lead to the emergence of new, hybrid, or higher-order CRs. For example, the intersection and fusion of two originally independent academic disciplines (each with its CRO) might, through the BSO mechanism, give rise to a new, interdisciplinary CR system.

This horizontal interaction is an important pathway in the cosmos of *Relatedness Theory* for complex functional synergy, the evolution of structural diversity, and (at the cognitive level) cross-domain knowledge integration and innovation.

The BSO mechanism, through these multiple interactive paths —"bottom-up," "top-down," and "horizontal"—ensures that the hierarchical structure of CRs is a vibrant, interdependent, co-evolving ecosystem of references. It is not a simple "superior determines subordinate," nor a pure "subordinate constitutes superior," but a continuous, non-linear, often synchronous process of mutual influence, mutual shaping, and common adaptation among CRs of all relative tiers and their "identifiability thresholds." It is precisely this complex BSO dynamic that enables the cosmos of *Relatedness Theory* to exhibit, at different scales, an ordered tableau that is both unified and highly differentiated, both capable of maintaining relative stability and of continuously innovating and evolving in its richness and profundity.

4.4 The Dynamic Lifecycle and Evolutionary Propensity of Commonality References (CRs): The "Displacement" of "Existence Basis" Driven by EEP

A Commonality Reference (CR), as a stable relational structural pattern embodying specific "commonality rules" and a "referential cornerstone" emerging from the self-organizing interaction of "Primordial Vectors (PVs)," does not enter an eternally unchanging static state once formed. On the contrary, any finite CR intrinsically possesses dynamic stability and a latent evolutionary propensity. This dynamism originates from its role as the organizational core and referential framework of a "Relatedness System (RS)" (or "Relatedness Level, RL"), which necessarily confronts and participates in the most fundamental dynamic process of *Relatedness Theory*—the "Existence-Evolution Paradox (EEP)." This section will preliminarily explore the "stability period (T_CR)" of a CR, the "organizational cost (h(T))" required to maintain this stability (a concept to be elucidated with more detailed philosophical principles in subsequent EEP chapters), how these two, along with the "evolutionary rate (v)" driving RS transformation, constitute the core tension of EEP, and briefly reveal how this dynamic lifecycle of a CR presages and corresponds to its fundamental "displacement" on the "Existence-Evolution Axis (EEA)."

4.4.1 T_CR: The "Stability Period" of a Commonality Reference (CR)—The Effective Application Lifespan of the "Commonality Rules" it Embodies, or the Characteristic Timescale for its Stable Existence as a "Referential Cornerstone."

The "Period of Definitional Power (T_CR)" (more accurately understood in this chapter's context as the CR's "Stability Period" or the "Effective Application Period" of the "commonality rules" it embodies) is not a fixed length of time measured by an external clock. It should rather be understood as the characteristic timescale or intrinsic stability limit for which a specific Commonality Reference (CR) and the "commonality rules" it embodies and solidifies can effectively serve as the organizational core and referential cornerstone of the "Relatedness System (RS)" (or "Relatedness Level, RL") it defines, enabling its internal "Dependency Path (DPs)" network to operate stably and "Relative Entities (REs)" to continuously manifest (under its "identifiability threshold"). T_CR is a dynamic parameter, its duration jointly determined by the CR's

own structural characteristics (as the intrinsic robustness of a stable relational structural pattern), the self-consistency of the rules it embodies, and the overall dynamic state of the RS in which it is embedded (especially the intensity of the EEP it faces).

Factors determining T_CR (briefly):

1. Internal consistency of CR rules and structural robustness: If a CR embodies "commonality rules" with fewer internal logical conflicts, and if, as a relational structural pattern, it possesses greater capacity to "absorb" or "repair" minor perturbations (e.g., routine fluctuations from "Fluidity of Internal Relations, FIR" or "Infinite Potentiality Pressure, IPP") (i.e., higher robustness), then this CR tends to have a longer T_CR. It can more effectively resist factors attempting to undermine its consistency as a reference and its status as an organizational core.

2. Responsiveness and integration degree of the DPs network to it as a "referential cornerstone": The stability of a CR also profoundly depends on whether the DPs network within its sphere of influence can continuously and effectively refer to its rules for organization and operation. If the rules embodied by a CR gradually become unable to enable the DPs network within its sphere of influence to form self-consistent, stable structures (e.g., due to the accumulation of a large number of new relational patterns within the RS incompatible with existing CR rules, or because the "Incompleteness of Foundation, IoF" of the CR rules leads to rule failure in certain situations), or if the CR and the DPs network it organizes cannot effectively integrate PV potentiality compatible with its rules from the relative "Pure Nothingness" background to repair and maintain its network (e.g., its "identifiability threshold" is too high or inappropriate, leading to an inability to effectively "see" and utilize available potentiality), then the referential efficacy of this CR will decline, and its T_CR will shorten accordingly.

3. Impact of environmental perturbations (rule influences from other CRs or higher-order AROs) on its stability: Any CR exists within the infinite potentiality background of "Pure Being" and may interact with the external environment—including other "Relatedness Systems (RSs)" (which are also organized by their respective CRs) or higher-order "Encompassing/Inclusive Commonality References (AROs)"—through the boundaries of its RS. Competitive influences from these external CR systems (e.g., the "permeation" of different organizational principles or rules), conflicts with incompatible rules, or fundamental changes in the

background rules at the ARO level, can all pose challenges to the stability of the current CR, thereby affecting its T_CR.

4.4.2 h(T): The Overall "Organizational Cost" that a DPs Network Must Expend to Maintain an Organizational Mode Centered on a Specific CR (Philosophical Elucidation of Principles, Pointing Out its Potential Superlinear Growth with Increasing T_CR or v).

Relatedness Theory profoundly observes that maintaining any finite, structured existence (i.e., a "Relatedness System, RS" with a specific Commonality Reference, CR, as its organizational core and referential cornerstone) necessarily entails some form of intrinsic "cost." Understood from philosophical principles, the "maintenance cost (h(T))" (where T typically refers to T_CR, i.e., the period of maintaining that CR's stability) represents a generalized "organizational effort" or "consumption/dissipation" that an RS's "Dependency Path (DPs)" network must continuously "expend" to maintain, within a certain T_CR, the structural integrity of its core CR, the effective applicability of its rules, the stability of its "identifiability threshold," and its resistance to internal and external perturbations. This "cost" is not merely energy consumption in the traditional physical sense; it can be more broadly understood as: the "organizational resources" required to manage the intrinsic complexity and conflicts arising from the "Incompleteness of Foundation (IoF)" of CR rules; the information processing load required to handle and integrate the "Infinite Potentiality Pressure (IPP)" from "Pure Nothingness" and the "Open System Adaptation (OSA)" demands from external environmental changes; and the continuous "structural repair" and "information calibration" activities needed to counteract the structural uncertainty brought by "Fluidity of Internal Relations (FIR)," maintain the self-consistency of the DPs network with the CR, and preserve the CR's referential clarity.

A core philosophical insight of *Relatedness Theory* (whose mechanism will be detailed in subsequent EEP chapters) speculates that this "maintenance cost (h(T))" is not a fixed value, nor does it simply grow linearly with the length of the desired rule application period (T_CR) or the intensity of the "evolutionary rate (v)" it faces. Instead, the theory speculates that when an RS attempts to pursue a higher degree of stability (i.e., a longer T_CR), or when the internal and external transformative pressures (v) it faces continuously intensify, the marginal "organizational cost (h(T))" that its DPs network must expend to maintain

operation according to the current CR may increase disproportionately and sharply (possibly superlinearly; for example, in an exploratory mathematical formulation, h(T) might be related to T_CR raised to some power greater than 1, T_CR^γ, γ>1). This (possible) superlinear growth characteristic is one of the key philosophical posits of *Relatedness Theory* explaining why the T_CR of any finite CR is necessarily finite and cannot achieve eternal stability. It constitutes the profound costliness of "existence."

4.4.3 CR as the Core of the "Existence-Evolution Paradox (EEP)": How v (the RS's Intrinsic Transformative Propensity) Continuously Challenges CR Stability; How T_CR and h(T) Embody the Cost of the "Persistence" Force Countering v; and How CR Stability is Fundamentally Constrained by its RS's "Existence-Bearing Capacity (C_max)."

Any "Relatedness System (RS)" defined by a finite Commonality Reference (CR) is necessarily and intrinsically driven by the "Existence-Evolution Paradox (EEP)." The core of EEP lies in the fundamental, unavoidable intrinsic tension between the RS's inherent overall "evolutionary rate (v)," originating from its profound ontological condition, and the effort and "organizational cost (h(T))" required for the RS to maintain its core CR in a relatively stable state for a certain "stability period (T_CR)." Furthermore, the operation of this tension is fundamentally constrained by the RS's generalized "existence-bearing capacity (C_max)" (determined by the specific structure of its core CR), which is its overall "capacity" limit to organize information, transmit influence, manage internal conflicts, and effectively interact with the environment.

1. The RS's internal "evolutionary rate (v)" continuously challenges CR stability: As detailed in Chapter 10, v, representing the transformative propensities from Infinite Potentiality Pressure (IPP), Incompleteness of Foundation (IoF), Fluidity of Internal Relations (FIR), and Open System Adaptation (OSA), constantly "erodes" and "tests" the stability of the current core CR and the effective applicability of the rules it embodies. A continuously increasing v, or a v whose nature is incompatible with the core commonality of the existing CR, will directly impose ever-increasing "existential stress" on that CR's stability.

2. T_CR and h(T) embody the cost of the "persistence" force countering v: Faced with the system's intrinsic "evolutionary rate (v),"

the CR's "stability period (T_CR)" represents the "durability" with which its defined "existence basis" can resist this tendency towards change and maintain its own structural and rule integrity for a certain period. However, this "persistence" requires the RS's DPs network to expend an ever-increasing (possibly superlinearly with T_CR) "organizational cost (h(T))". In EEP, v is like the "tension" seeking transformation, while T_CR and h(T) collectively represent the "resilience" of maintaining the existing order and its "cost."

3. CR stability is constrained by the RS's "existence-bearing capacity (C_max)": The overall "activity intensity" or "existential stress" of an RS (which can be conceptualized as some measure Σ related to v and h(T)) cannot exceed the upper limit C_max supportable by its core CR's structure. When Σ approaches or attempts to exceed its C_max due to the intensification of EEP contradictions (e.g., v is too high, or T_CR is too long leading to an extremely high h(T)), the stability of the core CR reaches its limit.

4.4.4 The Destabilization, Disintegration, and Reconstruction of CR (i.e., its "Displacement" in "Possibility Space") as the Inevitable Result of EEP Contradiction Intensification, Forming the Core Content of "Transition Nodes" on the "Existence-Evolution Axis (EEA)."

When the "Existence-Evolution Paradox (EEP)" within a "Relatedness System (RS)" intensifies to a degree that the existing Commonality Reference (CR) framework can no longer effectively manage and accommodate, that core CR loses its stability, and the "existence basis" it defines begins to disintegrate. This marks the "failure" and "sublation" of the old CR. The system will enter a "chaotic exploratory period" and may eventually, through the synergistic action of the "Global Bidirectional Self-Organization (BSO) mechanism" and a reactivated "Commonality Self-Activation Mechanism (CSAM)," probabilistically give rise to a new CR', achieving a "displacement" of the CR in "possibility space." The specific dynamic mechanisms of this entire "displacement" and reconstruction will be the core content explored in depth in subsequent EEP and EEA chapters. This chapter primarily focuses on a preliminary understanding of CR's origin, essence, referential function, and its dynamic stability, laying the groundwork for subsequent evolutionary discussions.

1. Failure of old CR rule system and the opening of a "chaotic exploratory period": The disintegration of the old core CR leads to the loss of a unified organizational principle for the RS's internal original "Dependency Path (DPs)" network structure and "Relative Entity (REs)" manifestation patterns. The system may exhibit a high degree of disorder, random breaking and recombination of DPs connections, and rapid fluctuations or unpredictable behavior of REs patterns. This is a critical state where "the old order is dead, the new order is not yet born." During this phase, due to the collapse of the old CR's "defining field," a portion of the "Pure Being" potentiality previously "veiled" by the old CR's relative "Pure Nothingness" gains the opportunity to be re-"scrutinized" and probabilistically "activated."

2. Possible reactivation of CSAM in CR reconstruction (as a specific manifestation of BSO, providing "structural germination" for new CR emergence): During the period when the old CR's structural constraints are lifted and the system's interactive interface with "Pure Nothingness" potentiality becomes more open and fluid, *Relatedness Theory* speculates that the "Commonality Self-Activation Mechanism (CSAM)" (or some variant adapted to a background with pre-existing partial structures) may be "re-ignited." At this time, CSAM's operational basis is no longer completely undifferentiated "Pure Being," but a potentiality background that has experienced structurization but is currently in a state of deconstruction and high plasticity. It may utilize the PVs released after the old CR's disintegration, residual DPs fragments or REs patterns, and newly activated PVs' "relational propensities" from the "Pure Nothingness" background, to probabilistically generate new DPs connections and potential CR candidate patterns.

3. Probabilistic emergence and stabilization of a new CR' (new Commonality Reference) under BSO dominance (profoundly elucidating how the four sources of v collectively influence the "possibility direction" and "selection" probability distribution of the new CR' via the BSO mechanism): In the chaotic exploratory period, through the continuous operation of the "Global Bidirectional Self-Organization (BSO) mechanism," and the interaction, competition, and synergy among the numerous "possibility germs" produced by a possibly reactivated CSAM, a new Central Commonality Reference CR' (which will possess its own T'_CR, h'(T'), and C'_max characteristics), if it can more effectively manage the balance between v and T'_CR/h'(T') within the RS's current (possibly significantly changed due to the old CR's collapse) C'_max

constraint, may emerge with a certain probability and gradually stabilize, becoming the RS's new core CR.

In this process of exploring and a new CR' emerging, the four sources of v—the "traction" effect of Infinite Potentiality Pressure (IPP) on the RS's internal DPs network, the "logical pain points" of the old CR exposed by Incompleteness of Foundation (IoF), the "structural diversity" possibly generated by Fluidity of Internal Relations (FIR) during the chaotic period, and the responsive demand to new environmental conditions from Open System Adaptation (OSA)—will collectively, via the BSO mechanism, influence the "possibility direction" (in the abstract "CR possibility space") of the new CR's emergence and the probability distribution of its eventual "selection" (dynamic stabilization). This systemic reorganization and adjustment of the underlying DPs network ultimately manifests as a "displacement" of the CR, as its organizational core, in the "possibility space" of "Pure Being"—that is, its core commonality rules, structure, and operational mode undergo a fundamental transformation.

4. Renewal of the RS's "existence basis" and the beginning of a new EEA "plateau phase": The establishment and stabilization of the new CR' signify that the RS has successfully completed a profound "displacement" and "paradigm shift" of its "existence basis." This RS will take this new CR' as its core organizational principle and rule system; its internal DPs network will reorganize around the new CR', and new REs patterns will manifest under the new CR''s "projection rules." The RS thus enters a new "plateau phase" on its "Existence-Evolution Axis (EEA)," beginning a new period of existence and evolution under different rules and structures. This new stable period will continue until the "period of definitional power (T'_CR)" of this new CR' once again faces its end due to the continuous accumulation and intensification of EEP contradictions.

This chapter's discussion of CR dynamism aims to provide a preliminary philosophical basis for its non-eternality and ultimate evolvability, and foreshadows the "core dancer" role that CR inevitably plays on this axis of transformation, the EEA.

4.5 Identifiability Threshold (IT): The Inevitable Logical Form and Functional Boundary of a CR as a Finite Reference within Infinite Potentiality

Introduction: From the Existence of CR to the Question of its Operational Boundaries

In the preceding discussions, we have elucidated how a Commonality Reference (CR), as a stable relational structural pattern embodying specific "commonality rules," historically emerges from the infinite potentiality of Pure Being (PB) through the "Commonality Self-Activation Mechanism (CSAM)." The birth of a CR provides "Relational Reality" with its first "anchor of order" and "cornerstone of rules." However, a more profound question follows: How does any CR, as a finite, relatively stable structure "condensed" from an infinite, eternally fluctuating potentiality background, interact with this infinite background? How does it define its own "scope of action"? And based on what does it "incorporate" certain potential relational patterns into its organizational framework while "excluding" others?
The answer to these questions leads to an inseparable, inherent attribute of CR—the Identifiability Threshold (IT). This section aims to profoundly reveal that IT is not an additional component requiring an independent "formation mechanism." Rather, it is a fundamental logical form and functional boundary necessarily exhibited by any CR in its existence and operation within the infinite dynamic background of "Pure Being," due to its three fundamental characteristics: "finitude," "stability," and "referential function."

The Ontological Roots of IT: The Logical Form of CR's Existence and Operation

1. The Logical Form of Finitude Existing within an Infinite Background
Because any CR is a finite relational structural pattern, whereas the Pure Being (PB) background from which it originates and in which it exists is infinite. Therefore, a finite system cannot, ontologically, engage in infinite, undifferentiated interaction with the infinite background it inhabits. If a CR were completely open to, and indiscriminately received and processed, all potential influences and information flows from its exterior—that is, its relative Pure Nothingness (PN), as the infinite potentiality of PB—it would be instantaneously overwhelmed by an infinite flux of information. Its finite structure would be unable to maintain any stability, thereby immediately disintegrating and reverting to an undifferentiated potential state.
In summary, for any finite CR to exist as "one" distinguishable, finite structure, it must logically possess a function that enables it to differentiate the finite "Relational Reality" it can effectively process from the infinite potentiality background it cannot. The "Identifiability Threshold (IT)" is precisely the name and description for this necessary function of "differentiation and filtration." It is not a "set" parameter, but the logical form of the functional "interface" or "boundary

condition" that necessarily exists between a CR, as a finite existence, and the infinite background.

2. The Logical Form of Maintaining Stability Amidst Eternal Fluctuations
Because the essential characteristic of a CR is relative stability, whereas the "Pure Being" background in which it is situated possesses immanent eternal random fluctuations.
Therefore, the very definition of "stability" implies an "insensitivity" or "resistance" to a certain degree of perturbation. A system that responds drastically to any minute fluctuation cannot be called "stable." Thus, a stable CR must dynamically exhibit such a characteristic: it can "absorb" or "ignore" perturbations below a certain critical intensity (treating them as "noise"), while only responding substantively to those perturbations whose intensity is sufficient to alter its core structural pattern (treating them as "signals").
In summary: The "Identifiability Threshold (IT)" is precisely the logical description of this dynamic critical point that distinguishes "ignorable noise" from "signal requiring response." It is not a "filter" installed on the CR, but a direct manifestation of the dynamic inertia of the CR itself as a stable relational structural pattern. The more robust the CR's structure, and the stronger the positive feedback lock-in of its internal Dependency Paths (DPs), the greater its dynamic inertia, and thus the higher its IT. IT is a necessary functional trait of CR stability.

3. The Logical Form for the Realization of Referential Function
Because the core function of a CR is to serve as a "reference frame," "projecting" and identifying Relative Entities (REs) within its "Defining Field," and organizing Dependency Paths (DPs).
Therefore, the act of "identification" or "reference" logically presupposes a "standard" or "criterion." A "reference frame" without a standard cannot perform any effective reference. If a CR were to "project" all DPs network patterns indiscriminately, the result would be chaos, and no distinguishable, stable RE could emerge. To realize its function as a reference, a CR must be able to distinguish which patterns are "signals" conforming to its "commonality rules" and are sufficiently clear and stable, and which are "background" that is non-conforming or obscure.
In summary: The "Identifiability Threshold (IT)" is precisely the logical form of that intrinsic "identification standard" or "projection criterion" upon which a CR must rely to realize its referential function. It stipulates the minimum standard that a DPs network pattern must meet in terms of "signal strength," "pattern clarity," or "degree of matching" with the CR's "commonality rules" to be successfully "identified" and stably "projected" as an RE. Without IT, the "referential" function of a CR would be inconceivable.

The Relativity and Dynamism of IT: Functional Boundary Adjustment in CR Evolution

Let us take as an example: "human eyes cannot see electromagnetic waves." The "commonality rules" of the human visual system (an RL defined by CR_Vision) are fundamentally incompatible in pattern with the DPs carried by radio waves. For CR_Vision, the IT for radio waves is undefined; they belong to its relative "Pure Nothingness."
However, when a human (RS_Human) forms a temporary, higher-order "human-machine Relatedness System" (RS_Human+Tool) with a radio telescope (RS_Tool) through a series of new DPs (operation, data transmission, etc.), this new system gives rise to a composite, higher-order CR. This new CR integrates the identification capabilities of the tool and the cognitive capabilities of the human, thereby establishing a new IT, enabling the previously invisible radio waves to be "identified" by this new system and translated into REs perceivable by humans (such as images).
This example illustrates that:

> IT is strictly CR-dependent: Its "value" and "scope of application" are entirely determined by the "commonality rules" of its encompassing CR.

> IT is dynamically variable: It is not a fixed barrier. When an RS, via the BSO mechanism, forms new connections with other RSs, or when its own core CR undergoes "displacement" on its "Existence-Evolution Axis (EEA)" driven by the "Existence-Evolution Paradox (EEP)," its IT will also undergo profound change. This change is one of the core mechanisms for RS evolution and the expansion of cognitive boundaries.

Chapter Summary: IT—The Imprint of CR's Finitude

The "Identifiability Threshold (IT)" is not a mysterious parameter requiring an independent formation mechanism. Rather, it is the unified logical form necessarily exhibited by any Commonality Reference (CR)—as a finite, stable, and referentially functional relational structural pattern—in its existence and operation.

> IT is the logical expression of CR's finitude: It defines how a finite CR interacts with the infinite "Pure Being" background.

IT is the dynamic embodiment of CR's stability: It marks the dynamic inertia of a CR in resisting eternal fluctuations and maintaining its own structure.

IT is the logical prerequisite for CR's referential function: It constitutes the intrinsic standard by which a CR can perform pattern recognition and "projection."

Understanding this profound, intrinsic status of IT as a necessary logical form of CR is of paramount importance for our comprehension of how *Relatedness Theory* gives rise to structured, bounded, identifiable, and describable "Relational Reality" and the phenomenal world from the infinite potentiality background of "Pure Being." It is the indispensable logical bridge connecting the abstract rules of CR with its concrete operation in "Relational Reality."

4.6The Profound Philosophical Implications of Commonality References (CRs) and the Holism of the Cosmic Tableau in Relatedness Theory

Once the profound essence of a Commonality Reference (CR)—as a dynamically evolving stable relational structural pattern co-woven from the "Dependency Path (DPs)" network, embodying specific "commonality rules," and serving as the "referential cornerstone" of "Relational Reality" (and inherently possessing an "identifiability threshold")—is revealed, the philosophical implications it holds within the entire cosmic tableau of *Relatedness Theory* become clearer and more far-reaching. It not only provides the core logical hub for *Relatedness Theory's* cosmic structural generation and dynamic evolution but also fundamentally reshapes our traditional understanding of order, rules, meaning, existence itself, and complex phenomena (such as life and consciousness).

4.6.1 The Emergence, Relativity, and Evolvability of Cosmic Order and "Physical Laws": CR as a Fundamental Challenge to Static Entity-based Theories and the Notion of Absolute Laws (Profoundly Correlated with the "Principle of Relative Causal Restructuring").

In the vision of *Relatedness Theory*, the cosmic order we experience does not originate from some external "legislator" or a priori "design blueprint," nor are what we call "physical laws" eternal, immutable, absolute decrees. The concept of the Commonality Reference (CR) fundamentally challenges this static entity-based view and the notion of absolute laws:

1. Order and laws are manifestations of CR emergence: The order and "physical laws" of the cosmos are the sum total of those relatively stable "commonality rules" and "organizational principles" inherent in and exhibited by a specific CR (e.g., the cosmological core CRO_Cosmos defining the basic operational mode of our current observable universe). "Laws" are direct manifestations of CR functions, the "codes of conduct" for the DPs network under that CR's frame of reference, and the "evolutionary script" for "Relative Entities (REs)" under that CR's "projection." Order and laws are dynamic modes of operation of Relational Reality itself, intrinsic to specific CR structures and their dynamics.

2. The relativity and context-dependence of laws: Since "laws" exist by virtue of specific CRs, their form, content, and validity are necessarily relative and context-dependent. Different CRs (e.g., at different stages of cosmic evolution, or in different regions of the cosmos, if CR_Cosmos itself possesses spatiotemporal evolutionary characteristics or local variations) may define different "effective laws." We cannot simply absolutize the "laws" of a particular level or period.

3. The evolvability of laws—a manifestation of the "Principle of Relative Causal Restructuring": CRs are not eternally immutable; they undergo fundamental "displacements" (i.e., the old CR destabilizes and disintegrates, and a new CR' emerges and stabilizes) along their "Existence-Evolution Axis (EEA)," driven by the intrinsic "Existence-Evolution Paradox (EEP)" of their encompassing "Relatedness System (RS)." Since "laws" are manifestations of the rules defined by CRs, when a core CR undergoes "displacement," the "laws" themselves must also undergo profound change. Old "laws" may become invalid, and new "laws" may emerge. This is precisely a profound manifestation of the "Principle of Relative Causal Restructuring" in *Relatedness Theory*: causal structure and operational rules are CR-dependent and dynamically reshaped with the evolution of CRs. Each "transition" of a CR on the EEA is a re-weaving of the "laws."

4.6.2 The CR Basis for the Context-Dependence, Hierarchical Nature, and "Meaning Generation" of Existence: CR Profoundly Embodies This Core Insight of *Relatedness Theory*.

The concept of the Commonality Reference (CR) fundamentally reveals the context-dependence, relativity, and hierarchical nature of existence:

1. Context-dependence: Any set of "commonality rules" embodied by a CR (along with its structural form and "identifiability threshold") is historically "woven" by its DPs network under specific "Pure Being" potentiality backgrounds, specific combinations of PVs' "inherent necessary propensities," and specific BSO/CSAM fluctuation conditions. The "order" it defines and the "meaning" it generates are strictly dependent on its own "core commonality" (i.e., rule content) and the broader referential background it is situated in (e.g., a higher-order ARO). To speak of the "absolute validity" of a set of CRs detached from its generative relational network context and referential hierarchical background is meaningless.

2. Relativity: Since CRs are context-dependent, everything defined by a CR as an "existence basis" (e.g., DPs connection patterns, REs manifestation attributes, the validity of local "laws," and generated "meanings") is also necessarily relative. There is no absolute "truth" or "form of reality" universally applicable to all CRs. The "reality" we can know and describe is always relative to some particular CR(s) (and their "identifiability thresholds").

3. Hierarchical nature: The hierarchical structure of CRs (SRO, CRO, ARO) and their complex interactions via the BSO mechanism profoundly reveal that the cosmos of *Relatedness Theory* is a multi-scale, multi-level, hierarchically nested system of references. Order and "laws" emerge and operate at different levels through different CRs and their "identifiability thresholds."

4. The CR basis for meaning generation: Isolated PVs or random DPs may not possess specific "meaning" in themselves. The establishment of a CR (as a stable relational structural pattern and referential framework, possessing its "identifiability threshold") enables information flows (as changes in DPs network states) and events (manifestations or interactions of REs) to be "decoded," "compared," and "evaluated" within this framework, thereby being constructed with specific contextual meaning. The CR constitutes the referential context for meaning generation, rather than actively "bestowing" meaning.

4.6.3 CR (as a Hierarchical Reference System with Corresponding "Identifiability Thresholds") Provides a Unified Referential Framework and Explanatory Potential for Understanding the Emergent Behaviors of Complex Systems (from the Physical World to Life, and even Phenomena of Consciousness).

The hierarchical structure of Commonality References (CRs) in *Relatedness Theory* (SRO-CRO-ARO) and the BSO interaction mechanisms between them offer a potentially highly unified explanatory framework for understanding various emergent phenomena in the cosmos, from simple to complex—including the order of the physical world, the organization and evolution of life, and even the generation of consciousness. These seemingly heterogeneous phenomena may all be understood as the emergent and operational results of specific CRs, co-woven and followed by DPs networks driven by BSO, at different scales and levels of abstraction:

1. Hierarchical order of the physical world: From microscopic CRs defining fundamental interaction rules and particle attributes , to macroscopic CRs defining the formation of galaxies and stellar systems, and potentially to a cosmological CRO or ARO defining the evolutionary rules of the entire observable universe, the hierarchical structure of the physical world can be understood as the nesting and evolution of CRs (and their "identifiability thresholds") at different scales.

2. Emergence and organization of life: The appearance and evolution of life, in the view of *Relatedness Theory*, are the result of specific types of CRs (e.g., a CRO_Life that enables its RS to achieve self-replication, metabolism, information processing, and effective interaction with the environment, its "identifiability threshold" possibly related to the minimum information complexity and energy flux required to sustain life activities) being "woven" by DPs networks and stably operating through extremely complex CSAM and EEA processes within a suitable ARO (such as Earth's early environment). A biological individual is itself a complex RS governed by its core CRO_Organism (the core reference defining its overall homeostasis and life cycle), containing innumerable functionally specialized SROs (e.g., local references defining specific biochemical pathways, organ functions, neural circuit operations, each with its more specific "identifiability threshold").

3. Possible explanation of consciousness: Consciousness, one of the most mysterious phenomena in the cosmos, may be tentatively understood within the framework of *Relatedness Theory* as: within a highly developed cognitive Relatedness System (RS_Cognition), its DPs network, through long-term BSO evolution, co-weaves and stabilizes an extremely complex and subtle "Core Self-Reference (CRO_Self)" (as a core reference for self-cognition and experience, its "identifiability threshold" possibly related to the complexity and intensity of internal and external information flows that the subject can be aware of and integrate) with high self-referentiality and integrative capacity. This CRO_Self enables RS_Cognition to integrate information flows (DPs) from multiple sensory channels, memory systems, and emotional modules (all organized by its internal SROs), and to generate phenomena such as "first-person subjective experience," "self-awareness," and "intentionality" under its unified referential framework (CRO_Self). The "content" of consciousness may be the result of specific DPs network activation patterns being "manifested" above the "identifiability

threshold" of this CRO_Self, while the "unity" of consciousness originates from the integrative function of this CRO_Self.

The potential of this unified framework lies in its attempt to use the same set of most fundamental ontological and dynamic principles, through CR (as an emergent stable relational structural pattern and referential cornerstone) as the core hub, to explain seemingly disparate physical, biological, and conscious phenomena, viewing them as different emergent forms of "Relational Reality" under the dominance of different complexities, levels, and CRs (and their "identifiability thresholds").

4.6.4 Reconstruction and Insights into Classic Philosophical Conundrums (e.g., "Ship of Theseus," "Who Am I?") from the Perspective of CR in *Relatedness Theory*.

The concept of the Commonality Reference (CR) and its inherent "identifiability threshold" provides a new and profound perspective for resolving classic philosophical conundrums such as the identity problem of the "Ship of Theseus" and the fundamental question of "Who am I?" concerning the individual self, RS_Self. The "answers" to these problems are no longer absolute or either/or, but profoundly dependent on which CR we choose as the standard for judgment, and how this CR's "identifiability threshold" defines and screens for the continuity of "visible" attributes, relations, and patterns.

For example, regarding the "Ship of Theseus," the judgment of its "identity" depends entirely on which CR we choose as reference. If we take "the collection of original material constituting the ship's hull" as the CR (whose "identifiability threshold" is extremely sensitive to material replacement), then the ship is long no longer the same. If we take "the continuity of specific historical cultural symbolic meaning and core functional patterns" as the CR (whose "identifiability threshold" focuses more on macroscopic patterns and cultural designation, with higher tolerance for changes in material composition), then the ship remains the same. Similarly, the answer to "Who am I?" also points to the understanding of the "Core Self-Reference (CRO_Self)" that defines "me" as this RS_Self. This CRO_Self is itself dynamically evolving, and its "displacement" on the EEA_Self constitutes the growth and transformation of an individual's life. These *Relatedness Theory* interpretations of philosophical conundrums will be more fully developed in subsequent chapters on philosophical elucidation, their core lying in

revealing the CR-dependence of concepts like "identity" and "self," and the defining role of their "identifiability thresholds."

4.6.5 CR as the Absolute Core Hub Connecting the Ontology (Pure Being, PVs), Structurology (DPs, REs, RLs, RSs), Dynamics (EEP, BSO, CSAM), and Evolution Theory (EEA) of *Relatedness Theory*; its Fundamental Status in Constructing a "Relation-Priority," Dynamically Evolving, Intrinsically Unified Cosmic Tableau.

The Commonality Reference (CR) is the dynamic core and logical hub of the entire theoretical system of *Relatedness Theory*. It is not only the bridge connecting *Relatedness Theory's* grand ontology (from "Pure Being" through the BSO/CSAM interaction of PVs to structured existence) with its refined structurology (the formation and organization of DPs, REs, RLs, RSs all require reference to CR and its "identifiability threshold"), but also the central stage for its profound dynamics (the EEP contradiction unfolds around the applicability of CR) and evolution theory (EEA records the history of CR replacement). Simultaneously, the concept of CR also provides a solid ontological foundation for the epistemology of *Relatedness Theory* (the context-dependence and constructivity of knowledge and meaning both require reference to specific cognitive CRs and their "identifiability thresholds").

The profundity of the CR concept provides us with a new and highly potential philosophical perspective for understanding how cosmic order emerges from the most primordial possibilities, woven by the relational network itself and following its endogenous references; how rules are jointly established and dynamically evolved without external legislators or presupposed purposes; how meaning is constructed within specific referential frameworks and their "identifiability thresholds"; and how existence itself evolves through eternal contradiction and the reconstruction of references. It invites us to thoroughly transcend traditional entity-based theories and absolutist conceptions, and to embrace a cosmic tableau where relations themselves weave references, and according to these references and their inherent "identifiability thresholds," dynamically evolve, hierarchically emerge, and are full of intrinsic creativity.

4.7Chapter Summary: Commonality Reference (CR)—The Endogenous, Dynamically Evolving Cosmic Order and Dynamic Cornerstone of Evolution in "Relational Reality"

This chapter has comprehensively and profoundly elucidated the concept of the Commonality Reference (CR)—the most central and pivotal concept in *Relatedness Theory*. A CR is not an a priori existing "entity" or an actively influencing "force," but rather the crucial link and core reference for the cosmos of *Relatedness Theory* to transition from the infinite potentiality of "Pure Being" towards structurization, orderliness, and ultimately, the capacity to evolve complexity.

Concise summary of the essence of CR: We have clarified that the essence of a Commonality Reference (CR) is non-substantial. It is a stable relational structural pattern that stably embodies and solidifies specific "commonality rules," emerging from the spontaneous interaction of "Primordial Vectors (PVs)" through the "Global Bidirectional Self-Organization (BSO) mechanism" and the "Commonality Self-Activation Mechanism (CSAM)." This relational structural pattern plays the role of a "logical origin" and a "referential cornerstone" in the network of "Relational Reality." Crucially, any CR inherently possesses an "identifiability threshold" that determines its scope of reference and the strength of its identifiability. The "reality" of a CR lies not in its constituent materials, but in the continuous effectiveness of the rules it embodies and its capacity to passively influence relational networks as a reference.

Emphasis on its core functions: We have detailed the fundamental referential effect of CR (and its inherent "identifiability threshold"). It does not actively "bestow" or "execute" functions. Rather, due to its existence as a stable relational structural pattern and set of rules referenced by the "Dependency Path (DPs)" network (driven by BSO), it passively yet fundamentally provides the necessary referential framework and possibility conditions for the ordering of the DPs network, the projective manifestation of "Relative Entities (REs)" (the principle of "no intrinsic attributes" for REs is thoroughly implemented here), the dynamic demarcation of a "Relatedness System (RS)" from relative "Pure Nothingness," and the generation of "meaning" in specific contexts.

Reiteration of its hierarchical nature and its dynamic evolution along the EEA driven by EEP (CR "displacement"): This chapter has also

systematically expounded the hierarchical structure of CRs (SRO, CRO, ARO). These CRs of different tiers, as reference systems of different scopes, degrees of abstraction, and "identifiability thresholds," engage in complex, dynamic interactions and mutual construction and evolution via the BSO mechanism. Simultaneously, we preliminarily linked the dynamic stability of a CR (characterized by its "stability period T_CR" and the "cost h(T)" required to maintain its organization) with its core role in the "Existence-Evolution Paradox (EEP)," and pointed out its eventual necessary experience of a fundamental "displacement" of its "existence basis" (i.e., CR destabilization, disintegration, and the emergence of a new CR') on the "Existence-Evolution Axis (EEA)."

Prospects for the revolutionary insights brought by the proposal of the CR concept for our understanding of cosmic order, laws, meaning, existence itself, and complex phenomena, as well as its foundational and overarching role in the entire theoretical edifice of *Relatedness Theory*:

The proposal of the Commonality Reference (CR) concept, and the profound understanding of it as a dynamically evolving "referential cornerstone" embodying "commonality rules" emerging from PV interactions, provides *Relatedness Theory* with a thoroughly non-teleological, relational, and intrinsically generative and evolutionary cosmic tableau.

CR is the dynamic core and logical hub of the entire theoretical system of *Relatedness Theory*. It is not only the bridge connecting *Relatedness Theory's* grand ontology (from "Pure Being" through the BSO/CSAM interaction of PVs to structured existence) with its refined structurology (the formation and organization of DPs, REs, RLs, RSs all require reference to CR and its "identifiability threshold"), but also the central stage for its profound dynamics (the EEP contradiction unfolds around the applicability of CR) and evolution theory (EEA records the history of CR replacement). Simultaneously, the concept of CR also provides a solid ontological foundation for the epistemology of *Relatedness Theory* (the context-dependence and constructivity of knowledge and meaning both require reference to specific cognitive CRs and their "identifiability thresholds").

This profound reshaping of the CR concept offers a new and highly potential philosophical perspective for us to understand how cosmic order emerges from the most primordial possibilities, woven by the relational network itself and following its endogenous references; how rules are jointly established and dynamically evolved without external legislators or presupposed purposes; how meaning is constructed within

specific referential frameworks and their "identifiability thresholds"; and how existence itself evolves through eternal contradiction and the reconstruction of references. It invites us to thoroughly transcend traditional entity-based theories and absolutist conceptions, and to embrace a cosmic tableau where relations themselves weave references, and according to these references and their inherent "identifiability thresholds," dynamically evolve, hierarchically emerge, and are full of intrinsic creativity. The profound impact of this reshaped CR concept on our future exploration of fundamental questions about the cosmos, life, and consciousness is worthy of our continuous deep thought and excavation. It constitutes the most important structural and functional pillar of the intrinsically unified, dynamically evolving "Relational Cosmos" that *Relatedness Theory* attempts to depict.

Chapter 5: Dependency Path (DP)—The Dynamic Threads Weaving "Relational Reality" and the Fundamental Carrier of Interaction

5.0 Introduction: From "Referential Framework" to "Relational Fabric"—The Origin of Dependency Paths

In the preceding chapters, we have witnessed how "Commonality References (CRs)" historically emerge from the infinite potentiality of "Pure Being" through the "Commonality Self-Activation Mechanism (CSAM)." The birth of a CR, like the first lighthouse erected in a chaotic ocean, provides the initial "fulcrum of order," "cornerstone of rules," and "framework of meaning" for the structured evolution of the cosmos. It defines a local "existence basis," endowing originally diffuse potentiality with preliminary specification.

However, an isolated CR (or several of them), even if internally constituted by "relationally locked-in" Dependency Paths (DPs), is still insufficient to form the vast, complex "real world" we experience, which is full of myriad connections and interactions. A referential framework needs objects to be referred to and connections operating within it. These "objects" are ultimately understood in *Relatedness Theory* as "Relative Entities (REs)," while that which connects all things, transmits influence, and weaves together the entirety of "Relational Reality" is the core concept to be explored in depth in this chapter—the Dependency Path (DP).

If CRs are the "nuclei of condensation" for order and the "legislators" of rules (albeit passive ones) in the cosmos of *Relatedness Theory*, then DPs are the "blood vessels" and "nerves" constituting the "flesh and blood" of this cosmos, the dynamic "threads" through which energy, information, influence, and constraint flow and are transmitted. They are "relations themselves" that have been activated.

Therefore, this chapter, immediately following the emergence of CRs, will systematically expound the origin of Dependency Paths (DPs) (especially their "responsive activation" under the influence of a CR's "Defining Field"), their fundamental characteristics after being realized as "relational propensities," their diverse functions in carrying basic cosmic interactions, their intrinsic dynamism and plasticity, and how they, as the most fundamental "building materials" in the grand framework of *Relatedness Theory*, participate in the construction of "Relative

Entities (REs)," "Relatedness Levels (RLs)," and "Relatedness Systems (RSs)," ultimately becoming the stage and medium for the unfolding of the entire cosmic dynamics (such as BSO, EEP, EEA). To understand Dependency Paths is to understand how the "Relational Reality" of *Relatedness Theory* is concretely and dynamically "woven."

5.1 Core Definition and Fundamental Characteristics of Dependency Path (DP): Activated "Relational Propensity"

5.1.1 Precise Definition of DP

In the philosophical principles of *Relatedness Theory*, a Dependency Path (DP) is precisely defined as: a dynamic channel or actualized connection that, under the influence of the "Defining Field" (or "Commonality Potential Field") formed by a specific Commonality Reference (CR), results from the "responsive activation" of the "relational propensity" (encoded as its "potential commonality label") carried by one or a group of "Primordial Vectors (PVs)." This transforms them from a state of pure, unmanifested potentiality (i.e., PVs as part of the "Pure Being" background) into actually carrying and transmitting some specific form of relatedness (e.g., information flow, causal influence, logical entailment, functional connection, structural constraint, energy transfer, or pattern propagation) within the "Relatedness System (RS)" or "Relatedness Level (RL)" defined by that CR. A DP is a crucial step in the transformation of "Pure Being" potentiality into structured "Relational Reality"; it is the actualization of "relational propensity."

5.1.2 Ontological Status of DP: A Direct Embodiment of the "Primacy of Relations" Principle

The Dependency Path (DP) occupies a vitally important position in the ontological architecture of *Relatedness Theory*; it is the most direct and concrete embodiment of the core principle of "primacy of relations":

A DP is the most fundamental unit constituting "Relational Reality": The cosmos is not composed of isolated "entities" which are then connected by secondary "relations." *Relatedness Theory* posits that the fundamental "fabric" of reality is woven from these activated, dynamic Dependency Path (DPs) networks.

A DP is the manifestation of "relation itself": A DP is not a "bridge" connecting two pre-existing "things"; it *is* that activated "relation" itself. Its "existence" lies in its connectivity, transmissivity, and mutual determinacy.

Preceding and constituting "entities": The "Relative Entities (REs)" we will subsequently discuss do not pre-exist DPs; rather, they are

stable patterns emerging from DPs networks within a specific CR framework. DPs are the foundation constituting REs.

This ontological status of DPs thoroughly subverts traditional ontological conceptions that start from entities.

5.1.3 Fundamental Characteristics of DP

A Dependency Path (DP), as an activated "relational propensity," exhibits the following fundamental characteristics:

Activated State: This is the most fundamental distinction between a DP and "Primordial Vectors (PVs)" as pure potentiality. A DP represents that the "relational propensity" carried by PVs has been "ignited" and realized, transforming from latent possibility into a currently operating connection capable of producing actual influence. It is relation in operation, not merely the possibility of relation.

CR-Dependence: Whether a PV can be activated as a DP, and the specific properties exhibited by the activated DP (e.g., what type of "relatedness" it transmits, its intensity, its stability), are entirely dependent on and specified by the context of the Commonality Reference (CR) in which it is situated and which activated it. The same PV, relative to CR1, might be activated as a DP transmitting specific information, while relative to CR2, it might remain unactivated (existing in relative "Pure Nothingness"), or be activated as another DP with entirely different functions.

Relativity of Meaning: As "relation itself," the specific "informational content" carried by a DP, the "causal influence" it mediates, or the "functional meaning" it embodies, can only be determined and understood within the specific frame of reference and rule framework established by its encompassing CR. Detached from this CR context, the activation pattern of a DP itself might merely be a segment of physical or informational process devoid of specific meaning. It is the CR that endows the DP with its role and value in its local "reality."

Non-Substantiality: A DP is a dynamic connection process, an influence channel, or an actualized mutual determination; it is not a static "thing" or "entity" with a fixed form, boundary, and intrinsic attributes. It is closer to a "verb" or "conjunction" describing interaction and relatedness, rather than a "noun" referring to an object. Its "existence" lies in its continuous operation and connective utility.

Dynamism and Plasticity: Dependency Paths (DPs) are not static connections but intrinsically possess the characteristics of dynamic change and structural malleability. They can be continuously activated (new relations formed by "responsive activation" of PVs under the influence of a CR's "Defining Field"), deactivated (old relations break due to CR stability fluctuations, internal conflicts, or environmental changes, returning to a state of "Pure Nothingness" potentiality), their connection topology reorganized (the structure of the relational network adjusts under the action of the "Global Bidirectional Self-Organization (BSO) mechanism"), and their transmission attributes (such as influence intensity, information transfer efficiency, activation threshold, or the precise expression of the "commonality rules" they carry) may also undergo fine-tuning due to internal system dynamics (such as the pressure of the "Existence-Evolution Paradox, EEP") or interaction with the environment. This inherent dynamism and plasticity of Dependency Paths are the intrinsic conditions and mechanistic manifestations for a "Relatedness System (RS)" to undergo state transitions, structural evolution, and complex continuous interactions with its environment. Phenomena observed at the macroscopic level and identified by us as complex processes such as "learning," "adaptation," or "(non-teleological) evolution," at their most fundamental level, necessarily involve and manifest as this continuous activation, deactivation, reorganization, and attribute adjustment of Dependency Path networks.

These fundamental characteristics collectively depict the Dependency Path (DP) as the most basic and most active dynamic element in the cosmos of *Relatedness Theory*, constructing all structures, transmitting all interactions, and exhibiting infinite evolutionary potential.

Second Stage: Responsive Generation and Weaving of Broader DPs Networks Under the Reference of Formed CRs

Once a Commonality Reference (CR)—especially a core CRO defining an RS—successfully emerges and stably exists through the aforementioned mechanisms, it begins, through its own solidified "core commonality rules" and inherent "identifiability threshold," to passively yet fundamentally shape the subsequent generation and weaving of broader "Dependency Path (DPs)" networks within its sphere of influence (i.e., its "Defining Field" or "Commonality Potential Field"). This process is not the CR's active "design" or "instruction," but rather the result of "Primordial Vectors (PVs)" within "Pure Being" potentiality "responsively"

interacting with the specific "commonality environment" created by the formed CR.

5.2 Generation and Weaving of Dependency Paths (DPs): "Responsive" Realization Under a CR's "Defining Field"

5.2.1 From PVs' "Relational Propensity" to DPs' "Responsive Activation" (Under CR Reference)

(This section follows from sections 3.5.1 and 4.2.1.1, further deepening the perspective of DPs generation)

1. A CR's "Defining Field" and "Identifiability Threshold" as a "Commonality Filter" and "Probability Amplifier":

A stable CR, through its own solidified "core commonality rules" and inherent "identifiability threshold," diffuses a passive, structural influence—its "Defining Field" or "Commonality Potential Field"—into the surrounding "Pure Being" potentiality background.

This "Defining Field" acts like an invisible "filter." It significantly amplifies the probability that those PVs whose "relational propensities" (originating from their "inherent necessary propensities" and encoded as "potential commonality rules") are "compatible" with, "match," or can "resonate" with that CR's core commonality will be stably activated (transforming from pure potentiality into actual operating DP nodes or segments) and incorporated into the ordered structure referenced by that CR when perturbed by the eternal random fluctuations of the "Pure Being" background, provided that the "intensity" or "salience" of this activation mode can reach that CR's inherent "identifiability threshold."

It does not prevent other types of PV fluctuations but makes it easier for PV fluctuations that conform to its "commonality standard" and can "pass the threshold" to be "captured," "stabilized," and transformed into an activated state with a certain persistence, thereby forming new DPs.

2. The essence of "Responsive Activation": A leap from potentiality to specific relation within the CR context:

This activation of PVs is "responsive" because it is a spontaneous adaptation or resonance to the specific "commonality environment" and its "identifiability threshold" created by the formed CR, rather than direct intervention or "selection" by the CR.

A "responsively activated" PV actualizes one or several of its carried "relational propensities"; it begins to actually carry and transmit

the specific type of "relatedness" stipulated by that CR context. For example, in the "Defining Field" of a CR embodying "spatial attraction" commonality, those PVs carrying the propensity to "be attracted" or "produce attraction," if their potential interaction intensity can reach that CR's "identifiability threshold," are more easily activated as DPs transmitting this "attraction" influence.

This marks a leap from pure, diffuse PV potentiality to concrete DPs with specific properties and directionality, an atomic event for "Relational Reality" to further expand and enrich itself on the basis of existing CRs.

5.2.2 "Responsive Weaving" of DPs Networks (Driven by BSO and Under CR Reference)

Single or few "responsively activated" DPs are usually insufficient to constitute complex structures or realize precise functions. The formation of broader, more organized DPs networks is a "Responsive Weaving" process driven by the "Global Bidirectional Self-Organization (BSO) mechanism," under the continuous referential influence of a formed CR (and its "Defining Field" and "identifiability threshold"), and through the interactions between already activated DPs (based on the "relational propensities" of their PV origins).

1. Reference and constraint by CR rules on the "weaving" process:

A CR's "Defining Field" and its inherent "commonality rules" not only influence the activation of individual PVs but, more importantly, provide implicit "grammatical rules" and "structural constraints" for how DPs within its sphere of influence interconnect, combine, and operate synergistically.

The interactions between activated DPs (which themselves may activate new "intermediary" PVs via the BSO mechanism to form more complex DPs connections) will (non-teleologically) tend to form connection patterns and network topologies that are self-consistent with and coordinated with that CR's core commonality rules, and whose overall pattern's "manifestation intensity" can continuously satisfy that CR's "identifiability threshold."

2. Formation of ordered DPs networks with specific propensities, driven by BSO:

Guided by the "preferentiality" of the CR's "Defining Field" (i.e., certain types of connections are more stable or easier to form than

others, or can better contribute to the overall pattern reaching the "identifiability threshold"), DPs will, under the drive of BSO, self-organizingly "weave" into a complex network expanding around the CR (or within the RL defined by the CR), possessing specific holistic structural characteristics and functional propensities.

For example, under the reference of a CR emphasizing "efficient information transmission" commonality, the DPs network might evolve through BSO to exhibit topological structures with less redundancy, shorter paths, or specific central nodes. Under the reference of a CR emphasizing "structural robustness" commonality, the DPs network might form more mutually supportive connection patterns with stronger robustness through BSO.

3. Dynamic equilibrium and network plasticity (continuous action of BSO):

The "weaving" of "Dependency Path (DPs)" networks is a highly dynamic process. Under the continuous drive of the "Global Bidirectional Self-Organization (BSO) mechanism" and the reference of its encompassing "Commonality Reference (CR)" (and its inherent "identifiability threshold"), it involves the constant "responsive activation" of new DPs and their integration into the network; the deactivation and breaking of old DPs that no longer satisfy CR referential conditions (e.g., their connection strength or the "visibility" of their manifested pattern falls below that CR's "identifiability threshold," or the relational propensity they embody is no longer compatible with the evolving core rules of the CR); and the dynamic fine-tuning of the connection strengths and transmitted influence attributes of existing DPs under the continuous action of BSO.

This DPs network thus always exists in a non-equilibrium steady state, far from absolute stasis, continuously undergoing self-adjustment and reconstruction. This non-equilibrium steady state is the result of the BSO mechanism dynamically maintaining and adjusting within the referential framework of the relatively stable "existence basis" defined by its encompassing CR, in response to various internal and external perturbations (e.g., pressure from the system's internal "Existence-Evolution Paradox, EEP," or demands from external environmental changes brought by "Open System Adaptation, OSA"). The network exhibits adaptive potential to these internal perturbations and external environmental changes due to the intrinsic plasticity of its constituent

units (DPs)—this "adaptive potential," it must be emphasized, refers to its capacity, via the BSO mechanism, to adjust its own structure and operational mode to maintain its overall organization and functional coherence under the reference of that CR, a process which is strictly non-teleologically directed, reflecting the flexible expression, permitted and realized by BSO, of PVs' "inherent necessary propensities" at the relational level.

5.2.3 The Preliminary "Actual Structure" Formed by Subsequent DPs Network Formation

This dynamic DPs network, formed under the reference of an established CR (and its "Defining Field" and "identifiability threshold") through the "responsive activation" of PVs and the "responsive weaving" of DPs (all driven by BSO), constitutes the "actual structure" for further expansion and enrichment within the "Relatedness System (RS)" or "Relatedness Level (RL)" defined by that CR in *Relatedness Theory*.

1. Further enrichment of "Relational Reality" and expansion of the operational basis: It is no longer merely the foundational DPs of the CR's core but a "fabric" composed of more actually operating "relations," possessing broader morphology and more complex functions. This expanded DPs network is the basis for its encompassing RS or RL to perform more complex operations and exhibit more diverse phenomena.

2. The stage for carrying subsequent, more complex phenomena: All more complex phenomena, such as the emergence of more types and higher levels of "Relative Entities (REs)," the processing and integration of more complex information, the flow and transformation of energy, and even (in specific RSs) the continuous operation and development of life and consciousness, will unfold upon this "actual structure" of the DPs network, which was founded by the initial CR and continuously woven and reshaped by BSO.

This process, from the formation of the foundational DPs of a CR's core to the "responsive" expansion and spread of a broader DPs network under its reference, is a crucial step in the cosmos of *Relatedness Theory* from the simplest ordered reference towards a "Relational Reality" with greater extensity, more complex interactive capacity, and richer phenomenal content. It profoundly embodies the self-organizational nature of existence, its hierarchical construction characteristics, and the ubiquitous, fundamental role of the "Global Bidirectional Self-Organization (BSO) mechanism" therein.

5.3 Core Functions of Dependency Paths (DPs): As Carriers for the Transmission of Information, Influence, and Constraint

Dependency Paths (DPs), as the actualization of "relational propensities" of "Primordial Vectors (PVs)" "responsively activated" by the "Defining Field" of a Commonality Reference (CR), their core characteristic is not merely static "connection," but rather, they are dynamic, functional channels. DPs are the fundamental carriers and media in "Relational Reality" through which all interactions occur, information flows, constraints are imposed, and mutual determination is realized. They are the "aether" (this is a metaphor, not referring to physical aether) transmitting various "momenta" in this grand web of the cosmos.

5.3.1 Channels for Information Transmission

Within the framework of *Relatedness Theory*, "information" is primarily understood as identifiable "difference," perceivable "pattern," change of state, or the potential transmission of some "instruction." Dependency Paths (DPs) are precisely the specific pathways along which this information is transmitted within the relational network from one node (e.g., a "Relative Entity," RE, or the intersection of another DP) to another.

Carrying the propagation of "difference": If a certain part of a system (which can be considered an information source) undergoes a change in state, producing a "difference" from its surroundings or its previous state, then the DPs connecting to it may transmit this "difference signal." The state of the receiving end (another node) may thereby be perturbed or undergo a corresponding change; this constitutes an information transmission process.

Replication or transformation of "patterns": A DP, or a group of synergistically operating DPs, may also transmit a more complex "pattern" (e.g., the structural pattern or dynamic pattern of a certain RE). This transmission might be an approximate replication of the pattern, or it might involve transforming the pattern according to rules defined by the CR before transmission.

Conveyance of "instructions" (in specific advanced RSs): In certain highly complex "Relatedness Systems (RSs)" possessing internal

control hierarchies (still non-teleological, rule-based control) (e.g., the nervous system within an organism, or organizational communication systems in human society), DPs can serve as transmission channels for explicit "instructions" or "regulatory signals," coordinating the activities of different parts. Importantly, DPs themselves do not "understand" or "endow" information with meaning. The "meaning" of information manifests only within the CR context of its source and receiving nodes, through reference to and interpretation of the "difference" or "pattern." DPs faithfully (or with a certain degree of fidelity) play the role of conduits transmitting these "distinguishabilities."

5.3.2 Medium for Causal Influence

"Causal relation" in *Relatedness Theory* is not an absolute, a priori law. Rather, it is an observable pattern of influence (or a series of influences) being transmitted and transformed along a Dependency Path (DPs) network from one (or a set of) event(s)/state(s) (the manifestation of the "cause") to another (or a set of) event(s)/state(s) (the manifestation of the "effect"), within a relative causal framework defined by a specific CR.

The connection of DPs is a prerequisite for causality to be possible: If, within the context defined by the current CR, no activated DPs capable of effectively transmitting relevant influence exist between event A and event B, then A cannot become the (direct or indirect) "cause" of B. DPs constitute the "circuits" for causal chains to form.

Carrying and transmitting "influence": When a DP is activated and operates, it means it can transmit the "influence potential" (which may manifest as energy, momentum, information gradient, or other forms of "imbalance") carried by a state change or "perturbation" at one end to the other end, thereby potentially triggering a state change at that other end. This process of "influence" transmission is the microscopic mechanism of causal action.

CR defines the causal framework: The rules of a specific CR not only affect which DPs can be activated but also stipulate the nature, intensity, speed, and possible non-linear effects of influence transmission along these DPs. Therefore, the specific causal patterns we observe (e.g., whether deterministic or probabilistic, linear or complex) are profoundly shaped by the CR. DPs, as media for causal influence, also operate non-teleologically. They merely transmit influence according to their attributes and the rules defined by the CR; whether and how this

influence constitutes an identifiable "causal event" depends on the state of the entire relational network and the interpretation of the observer (and their cognitive CR).

5.3.3 Imposition and Conduction of Constraints

The operation of the cosmos is not entirely free and disordered but is filled with various "constraints." These constraints, whether originating from local rules defined by CRs or from the influence of the broader environment, need to be imposed upon the various elements within a "Relatedness System (RS)" and conducted through the Dependency Path (DPs) network.

Embodiment and enforcement of CR rules via DPs: The "commonality standards" and "operational rules" embodied by a CR (e.g., conservation laws in physics, stoichiometric rules in chemical reactions, homeostatic regulation mechanisms in organisms, legal norms in social systems) are not merely abstract declarations. They must be effectively "imposed" upon every "Relative Entity (REs)" and every interaction process within the RS defined by that CR, through the specific connection modes, transmission attributes, and interaction patterns of the DPs network permeating it, thereby constraining their behavior and evolutionary possibilities. DPs are the "executive arms" for CR rules to be "implemented" and exert actual constraining effects.

Transmission of constraints from the environment (ARO or other RSs): Any RS is an open system; it necessarily interacts with its external environment (such as an encompassing ARO or other adjacent RSs) through its "Pure Nothingness" boundary. "Constraints" from these external environments (e.g., the constraint of cosmic ARO's physical constants on all internal RSs, resource limitations of an ecosystem ARO on its internal species RSs, normative pressures of a socio-cultural ARO on individual RSs) are also input into the RS through DPs crossing its boundary (such as information flows, energy flows, material exchange, social influences), and then conducted via its internal DPs network to all levels and corners, thereby influencing its overall operation and evolution.

DPs, as conductors of constraints, ensure that the operation of an RS is not arbitrary but is always situated within a multi-layered network of constraints jointly shaped by its intrinsic CR and extrinsic ARO.

5.3.4 Realization of Mutual Determination

The "primacy of relations" ontology means that no element in the cosmos of *Relatedness Theory* exists in isolation; their existence and state profoundly depend on the "relational network" in which they are situated. Dependency Paths (DPs) are precisely the specific mechanisms through which this universal "Mutual Determination" is realized.

DPs connection signifies the beginning of mutual dependence: When two or more units (initially PVs, subsequently formed REs or more complex structures) establish connections via one or more DPs, they transition from a state of relative independence to a relationship of mutual dependence, mutual influence, and mutual specification.

Mutual influence of state changes: Any change in the state of one unit can have its resulting influence transmitted via connected DPs to other units, thereby causing corresponding adjustments or changes in the states of those units. Conversely, state changes in other units will also influence this unit via the same paths. This continuous, bidirectional or multidirectional transmission of influence ensures that the states of all units directly or indirectly connected by DPs within the network are in a dynamic process of mutual coordination (or mutual conflict, if DPs transmit negative influences or incompatible information).

The microscopic basis of Global Bidirectional Self-Organization (BSO): The core organizing principle in *Relatedness Theory*—the "Global Bidirectional Self-Organization (BSO) mechanism"—is precisely built upon this ubiquitous "Mutual Determination" realized by the DPs network that permeates all levels of the system and connects all elements. BSO describes this all-encompassing, multi-level, continuous process of mutual modulation and co-evolution conducted through the DPs network.

These core functions collectively highlight the central status of DPs as the direct actors of "relation" and the fundamental media of "interaction" in the cosmos of *Relatedness Theory*.

5.4 Diversity and Attributes of Dependency Paths (DPs)

Dependency Paths (DPs), as the fundamental "threads" constituting "Relational Reality," are not themselves monolithic but exhibit extremely rich diversity and varied attributes. It is precisely this diversity and differences in attributes that enable DPs networks to weave the complex structures and dynamic processes of the cosmos's myriad phenomena.

5.4.1 Diversity of DP Types

The diversity of DP types originates from the diversity of "potential commonality labels" (i.e., "relational propensities") carried by the "Primordial Vectors (PVs)" they activate, and from the diversity of "Commonality References (CRs)" that activate and organize these DPs. Based on the nature of the "commonality" or "relational propensity" they carry, and the type of "relatedness" they mediate within a specific CR context, DPs may manifest in a multitude of forms, for example (the following classification is merely indicative; the reality may be more complex and intertwined):

Physical-level DPs: These DPs are primarily associated with physical phenomena and interactions in our traditional understanding.

Examples: Interaction paths transmitting fundamental forces (such as gravity, electromagnetism, strong and weak nuclear forces) (which in exploratory models might correspond to processes of exchanging bosons or propagations of field perturbations); channels for the exchange of energy and momentum between material entities; interatomic or intermolecular connections constituting the internal structure of macroscopic objects (such as crystals, molecules) (e.g., relations mediated by chemical bonds, Van der Waals forces).

Informational-level DPs: These DPs primarily carry and transmit "information" in a broad sense, i.e., any pattern or influence capable of reducing uncertainty, generating difference, or inducing a change of state.

Examples: In logical systems, the logical entailment relation or inference step from concept A to concept B; in semantic networks, the meaning associations between words, symbols, and their referents or related concepts; in computational processes, the flow paths and transformation rules for data from input to processing unit to output; in cognitive systems, the neural information processing path where a

perceptual signal (like a point of light) triggers a series of neuron activations and ultimately forms a "concept" (like "red").

Biological-level DPs: These DPs are closely related to the organization and operation of life phenomena.

Examples: In gene regulatory networks, the regulatory relations where transcription factors bind to specific DNA sequences and influence gene expression; in metabolic networks, the metabolic pathways connecting different metabolites and enzymes through a series of biochemical reactions; in nervous systems, the connections through which neurons transmit nerve impulses via synapses; in ecosystems, the interdependent paths formed between different species through predator-prey, symbiotic, competitive, etc., relationships.

Social-level DPs: These DPs are related to the group interactions and organizational structures of humans and other social beings.

Examples: Interpersonal relations between individuals (such as kinship, friendship, cooperation, conflict); authority-responsibility relations, information flows, and command chains between different departments and individuals in organizational structures; transaction relations, value chains, and financial flows between producers, consumers, and markets in economic networks; propagation paths and influence networks of cultural concepts, knowledge, and norms in social groups.

This typological diversity of DPs is the foundation for *Relatedness Theory's* capacity for broad explanatory power, attempting to uniformly describe phenomena across different domains from physics to life, and then to cognition and society. Its core lies in the idea that all these different types of "relatedness" or "interaction," at a deeper ontological level, might be reducible to the same fundamental form of existence—Dependency Paths (DPs)—only that they are activated by different types of PV "relational propensities" in different CR contexts and carry "commonalities" of different natures.

5.4.2 Properties of DPs

In addition to typological diversity, each Dependency Path (DP) (or each group of DPs) itself may also possess a series of describable properties. These properties determine its specific behavior and influence within the relational network. These properties themselves may also be dynamic and influenced by the CR in which it is situated and the state of the entire DPs network:

Strength/Intensity: Refers to the tightness of the connection mediated by a DP, the efficiency of information transmission, the magnitude of causal influence, or the strength of constraint. For example, a high-intensity DP might mean a greater mutual influence between the two connected REs, or higher fidelity and faster speed of information transmission along it. The strength of a DP may be related to the number of PVs it activates, the intensity of PVs' "relational propensities," or the "efficacy" of the CR's "Defining Field" at that location.

Stability/Persistence: Refers to the characteristic timescale for which a DP can maintain its activated state and effective transmission function. This can be considered a local, DP-level "period of definitional power" (T_DP, if it can be so termed), which is necessarily much shorter than the T_CR of its encompassing CR. The stability of a DP may depend on the self-consistency of its internal PV combination, the strength of continuous support from its CR's "Defining Field," and perturbations from other parts of the network or the "Pure Nothingness" background. Highly stable DPs are key to constituting the structural and functional skeleton of an RS.

Directionality: Some DPs may exhibit a clear direction of influence transmission, i.e., influence primarily flows from one end to the other (e.g., in a classic causal chain A→B, the DP embodies directionality from A to B; or in the unidirectional transmission of nerve signals). Other DPs may be bidirectional or symmetrical, i.e., the connected parties can mutually influence each other (e.g., certain physical interaction forces, or mutual dependence in social relations). The directionality of DPs may be determined by the asymmetry of the "relational propensities" of the PVs they activate or by rules defined by the CR.

Activation Threshold and Plasticity:

Activation Threshold: Refers to the "resistance" that must be overcome or the "height" of "triggering conditions" that must be reached for one or a group of PVs to be "responsively activated" as DPs. This threshold may be influenced by the intensity of the CR's "Defining Field," the fluctuation level of the local "Pure Being" background, and the synergistic or inhibitory effects of other already activated DPs.

Plasticity: Refers to the capacity for the attributes of DPs (such as strength, connected objects, or even the precise expression of the "commonality" they carry) not to be immutable, but to undergo dynamic adjustment and change with the evolution of the system (RS or RL),

interaction with the environment, or pressure from internal "Existence-Evolution Paradox (EEP)." This plasticity of DPs is the microscopic basis for an RS to exhibit complex behaviors such as learning, adaptation, and memory, and also the source of eternal evolution and innovation in the cosmos of *Relatedness Theory*. (It is re-emphasized here that this "plasticity" is a characteristic exhibited by the system in its dynamic operation, not a capability DPs possess "in order to" achieve some purpose.)

These diverse types and attributes of Dependency Paths (DPs) jointly determine the complex structure, rich functions, and dynamic evolutionary behavior of the "Relational Reality" network woven by them. Understanding these specific characteristics of DPs is key to an in-depth analysis of various specific phenomena in *Relatedness Theory* (from physical interactions to cognitive processes).

5.5 The Relationship Between Dependency Paths (DPs) and Relative Entities (REs): From "Relational Fabric" to "Manifested Patterns"

The Dependency Path (DPs) network, as the fundamental fabric of "Relational Reality" formed by the "responsive activation" and "responsive weaving" of "Primordial Vectors (PVs)" under the "Defining Field" of a Commonality Reference (CR), is not itself usually an object of our direct perception or manipulation. The "things" or "phenomena" we experience and identify are termed "Relative Entities (REs)" in *Relatedness Theory*. This section will elucidate the profound, constitutive relationship between DPs as the foundational "relational fabric" and REs as their "manifested patterns."

5.5.1 REs as Stable "Projection" Patterns of DPs Networks Under Specific CR Reference (Following from Sections 4.2.1.2 and 4.2.2)

As we pointed out in Chapter 4 when discussing the core functions of a Commonality Reference (CR), a CR not only indirectly stipulates the "operational rule" patterns within its sphere of action through the "commonality rules" it embodies, but more crucially, it intrinsically contains a set of "projection rules," and also inherently possesses an "identifiability threshold." These two together constitute the core mechanism for "Relative Entities (REs)" to emerge and manifest from the underlying DPs network.

1. The DPs network is the more fundamental level of "Relational Reality": At the ontological level of *Relatedness Theory*, the dynamic DPs network, referenced and organized by a specific CR (e.g., a core CRO defining a "Relatedness System, RS," or an SRO defining an "Relatedness Level, RL" within an RS), is the more fundamental level of "Relational Reality." This DPs network contains all potential relations, interactions, and information flow paths (activated and maintained above that CR's "identifiability threshold") within that RS or RL.

2. REs are emergent patterns resulting from the combined action of specific CR "projection rules" and "identifiability thresholds": "Relative Entities (REs)" are macroscopic or mesoscopic relational patterns (patterns of relations) with relative stability and identifiability that emerge upon this foundational DPs network through the combined action

of the "projection rules" inherent in that specific CR and its intrinsic "identifiability threshold."

This process is not one where the CR actively "selects," "filters," "integrates," or "reduces the dimensionality" of the DPs network. Rather, its "projection rules" and "identifiability threshold" passively yet structurally cause certain specific subnetworks or relational patterns within the DPs network—those that can satisfy its "commonality standards" and form (relative to that CR) stable configurations (e.g., specific topological structures, a self-sustaining dynamic pattern, or an informationally relatively self-consistent organizational form)—to "stand out" from the background (i.e., their "manifestation intensity" or "pattern clarity" reaches or exceeds that CR's "identifiability threshold"), thereby being identified as a relatively independent, denotable "unit"—this is an RE.

3. The abstract "manifestation mechanism" essence of "projection": This "projection" is not a simple projection in the optical sense, but a more abstract "manifestation mechanism." It means that the "commonality rules" embodied by the CR and its inherent "identifiability threshold" jointly constitute a set of "manifestation conditions." Only when certain dynamic configurations or activity patterns of the underlying DPs network (the direct "precursors" of REs) happen to satisfy these "manifestation conditions"—i.e., they are highly compatible with the CR's rules, can form stable, self-consistent structures, and their overall pattern's "visibility" is sufficient to pass the "screening" of that CR's "identifiability threshold"—are these patterns more easily and stably "manifested" at the phenomenal level of the RS or RL defined by that CR.

4. CR-dependence of the relative stability and identifiability of REs: For a DPs network pattern to become an RE, it is crucial that it exhibits a certain relative stability (i.e., the pattern can, within a certain timescale, resist minor perturbations and maintain its core structure and function, which is closely related to the stability of its constituent DPs and the "period of definitional power T_CR" of its dependent CR) and identifiability (i.e., the pattern, within the CR context and its "identifiability threshold," possesses perceivable characteristics that distinguish it from its "background" or other patterns).

"Relative Entities (REs)" are therefore not the fundamental particles "constituting" the DPs network or some a priori "entity core." Rather, they are the "images" stably presented by the underlying DPs

network under the unique "referential lens" of a specific CR (and its "projection rules" and "identifiability threshold"), or the "compositions" possessing specific "meaning" within that CR context.

5.5.2 DPs Constitute and Connect REs

A constitutive relationship of "parts and whole," or "threads and fabric pattern," exists between Dependency Paths (DPs) and Relative Entities (REs); moreover, DPs also mediate interactions between REs.

The "internal structure" of REs is defined by core DPs: If we attempt to analyze the "internal constitution" of an RE (where "internal structure" should still be understood from the perspective of relational patterns rather than entity composition), then the core, relatively stable Dependency Path (DPs) subnetwork constituting that RE's specific pattern defines that RE's "morphology," "characteristics," and "intrinsic operational logic." It can be said that an RE *is* that specific local DPs configuration through which it stably manifests.

Interactions and relations between REs are realized through the DPs connecting them: Once REs emerge as identifiable patterns, they do not exist in isolation but as "nodes" or "dense regions" interconnected within a broader DPs network. Any interaction, information exchange, influence transmission, or functional relation between REs must be realized through Dependency Paths (DPs) that connect them and are capable of carrying the corresponding type of "relatedness." These "inter-RE" DPs constitute a higher-level relational network.

5.5.3 The Attributes of REs are Determined by their Position and Connection Mode within the DPs Network (in the CR Context)

Relatedness Theory thoroughly negates the notion that any "Relative Entities (REs)" possess so-called "intrinsic properties." All describable "attributes" of an RE (whether physical attributes like mass and charge, informational attributes like meaning and value, or functional attributes like catalytic ability and communication capacity) are not possessed by it in isolation. Instead, they are entirely determined by its specific position within the DPs network that constitutes it, its mode of connection and interaction with other REs (via DPs), and the overall manifestation of all this within the context and rule framework of its encompassing Commonality Reference (CR).

Attributes are relational emergents: For example, the "mass" of an elementary particle (as an RE) may not be its inherent "quantity of

substance," but rather a dynamic response characteristic exhibited in its interaction (via specific DPs) with the Higgs field (another RE) within the framework of a specific physical CR (such as the Standard Model). The "meaning" of a word (as an RE) depends entirely on its combination and usage with other words (REs) in sentences and discourses (DPs networks) under a specific linguistic CR (grammar, semantic rules).

The importance of CR context: The same RE (i.e., the same core DPs pattern), if placed in different CR contexts, or if its connection relations within the DPs network change, may exhibit fundamentally different "attributes." This thorough relationalization and contextualization of attributes is a key feature distinguishing *Relatedness Theory* from traditional entity-based theories and essentialism.

5.6 The Core Role of Dependency Paths (DPs) in the Dynamics of Relatedness Theory

Dependency Paths (DPs) are not merely the "threads" constituting the static structure of "Relational Reality"; they are, more importantly, the core media and dynamic stage in the entire cosmic dynamic tableau of *Relatedness Theory* through which information, influence, and constraint are transmitted, and change and evolution occur. They profoundly participate in and embody the various core dynamic mechanisms of *Relatedness Theory*.

5.6.1 DPs and Global Bidirectional Self-Organization (BSO)

Dependency Paths (DPs) are the material basis and informational channels for the "Global Bidirectional Self-Organization (BSO) mechanism" to operate—they are like the "blood vessels" and "neural network" of a complex living system.

Carriers of influence propagation: Whether it is "bottom-up" emergence (e.g., the collective behavior of lower-level REs converges through the DPs network and influences the stability or state of higher-level CRs) or "top-down" modulation (e.g., changes in the rules of higher-level CRs are transmitted through the DPs network and constrain the behavioral patterns of lower-level REs), all these influences and mutual determinations that span different parts and different levels must be propagated along activated DPs networks.

BSO evolution of DPs networks themselves: The "Global Bidirectional Self-Organization (BSO) mechanism" not only acts on REs and CRs connected by DPs networks but also governs the formation, maintenance, evolution, and reconstruction of DPs networks themselves. Under a CR's "Defining Field," the "responsive weaving" process of DPs is itself a form of BSO; in subsequent system evolution, in response to intrinsic "Existence-Evolution Paradox (EEP)" or changes in the external environment, the topological structure, connection strengths, and attributes of DPs networks will also continuously undergo dynamic adjustment under the governance of BSO.

5.6.2 DPs and the Existence-Evolution Paradox (EEP)

The dynamic characteristics of Dependency Path (DPs) networks are inextricably linked with the core impetus driving the evolution of a "Relatedness System (RS)"—the "Existence-Evolution Paradox (EEP)."

"Fluidity of Internal Relations" as one of the sources of (v): One of the sources of an RS's internal "evolutionary rate/tension ((v))" is precisely the "fluidity of internal relations (FIR)." This is directly manifested as the continuous, minute, spontaneous fluctuations of the DPs network constituting that RS, the dynamic changes in its connection strengths, the random deactivation of old DPs and probabilistic activation of new DPs, and the potential adjustment trends of the entire network topology. This unceasing "micro-agitation" of the DPs network collectively constitutes part of the intrinsic pressure pushing the RS to deviate from its current stable state and seek change.

The stability of DPs networks and the T_CR of CR: The stability of a Commonality Reference (CR), i.e., its "period of definitional power (T_CR)," also profoundly depends on the stability and self-consistency of the key DPs network that supports its core commonality rules. A CR can maintain its "definitional power" for a period because its core DPs configuration can effectively organize information flow, resist perturbations, and maintain its topological integrity. If these key DPs, which serve as the "skeleton" of the CR, undergo large-scale, irreversible disintegration or chaotic reorganization, then the "definitional power" of this CR will be lost, its T_CR will end, thereby directly threatening the CR's survival.

5.6.3 DPs and the Existence-Evolution Axis (EEA)

The fundamental transformation of Dependency Path (DPs) networks is the core hallmark and content of "transition nodes" on the "Existence-Evolution Axis (EEA)."

CR reconstruction is the "rewiring" of DPs networks: At a "transition node" on the EEA, when a core CR destabilizes due to the intensification of EEP contradictions and is ultimately replaced by a new CR', this signifies a fundamental transformation in the "existence basis" and "operational rules" defining that "Relatedness System (RS)." This transformation, at the level of "Relational Reality," is necessarily accompanied by a thorough "rewiring" or "paradigm shift" of its governing DPs network.

Invalidation of old DPs and emergence of new DPs: Many DPs connections that were stably existing under the "Defining Field" of the

old CR (especially those highly dependent on the old CR's core commonality) may lose their conditions for activation and maintenance with the disintegration of the old CR, thereby undergoing large-scale deactivation or severance. Simultaneously, under the influence of the "Defining Field" formed by the new CR', and with the possible reactivation of the "Commonality Self-Activation Mechanism (CSAM)," PVs conforming to the new CR''s commonality rules will be "responsively activated," forming entirely new DPs connection patterns and network topologies. This fundamental reconstruction of DPs networks is the most direct mechanistic manifestation of the cosmos achieving structural innovation, functional evolution, and complexity growth on the EEA.

5.7 Chapter Summary: Dependency Paths—The Dynamic Connections and Generative Threads of Cosmic Relational Reality

This chapter has thoroughly elucidated the core concept of the Dependency Path (DP)—the direct actualized manifestation of "relation" in *Relatedness Theory*. We have clarified that the essence of a DP is a dynamic channel, formed by the "responsive activation" of the "relational propensity" of "Primordial Vectors (PVs)" under the influence of a specific Commonality Reference's (CR) "Defining Field," which carries and transmits some form of relatedness. Its origin is strictly dependent on the CR's context, and its properties manifest as an activated state, CR-dependence, relativity of meaning, non-substantiality, and, crucially, dynamism and plasticity (this plasticity being the intrinsic condition and mechanistic manifestation for a system to undergo state transitions, structural evolution, and complex interactions, rather than for any specific purpose).

We explored the generation and weaving process of DPs, wherein a preliminary "actual structure" is formed through the "responsive activation" of PVs and the "responsive weaving" of the DPs network itself, guided by a CR's "Defining Field." The core functions of DPs lie in their roles as channels for information transmission, media for causal influence, pathways for the imposition and conduction of constraints, and the fundamental mechanisms for realizing universal mutual determination. DPs exhibit a typological diversity based on the "commonality" they carry (from physical to informational, biological, and social levels) and a series of describable attributes (such as strength, stability, directionality, activation threshold, and plasticity).

Of particular importance, we have clarified the relationship between DPs and Relative Entities (REs): the DPs network is the more fundamental "fabric" constituting "Relational Reality," while REs are macroscopic or mesoscopic patterns with relative stability and identifiability that emerge from this network under the projection rules of a specific CR. DPs both constitute the "internal structure" of REs and connect different REs, mediating their interactions.

Finally, we reiterated the crucial pivotal role of DPs in the grand dynamic tableau of *Relatedness Theory*. They are the "blood vessels" and "nerves" for the operation of the "Global Bidirectional Self-Organization (BSO) mechanism," the direct manifestation of "fluidity of internal relations"—a

core source of evolutionary tension in the "Existence-Evolution Paradox (EEP)"—and their network stability also profoundly affects a CR's "period of definitional power (T_CR)." At the "transition nodes" of the "Existence-Evolution Axis (EEA)," the fundamental reconstruction of DPs networks is an inevitable accompaniment and concrete embodiment of a core CR undergoing a paradigm shift.

In summary, Dependency Paths (DPs) are like the invisible yet ubiquitous "generative threads" in the cosmos, dynamically connecting all things and weaving the magnificent, eternally evolving tapestry of "Relational Reality." The proposal of the DPs concept provides a crucial theoretical cornerstone and an inspiring direction of exploration for us to profoundly understand how all things in the cosmos interconnect and interact, and how cosmic structure and process are unified within a common, relation-based ontological and dynamic framework.

Chapter 6: Relatedness System (RS)—The Dynamic Relational Whole Centered on a CRO and the Fundamental Tableau of Existence

6.0 Introduction: From "Relational Fabric" to Macroscopic "Units of Existence"—The Cosmological and Individual Significance of Relatedness Systems

In the preceding chapters, we have traced how the cosmos of *Relatedness Theory*, starting from its sole ontological cornerstone "Pure Being," gives rise to the first stable structural node—the "Commonality Reference (CR)"—through the "relational propensities" carried by "Primordial Vectors (PVs)" under the non-teleological operation of the "Commonality Self-Activation Mechanism (CSAM)." Subsequently, we explored how a CR, through its passive "Defining Field," enables "Dependency Paths (DPs)" to be "responsively activated" and "responsively woven" into networks, thereby constituting the preliminary fabric of "Relational Reality."

However, a CR and the DPs network it directly engenders, while laying the foundation for order and rules, do not in themselves embody the full complexity and diversity of the cosmos. The world we experience and observe presents itself as innumerable "systems" possessing relatively clear boundaries, unique identities, holistic operational logics, and their own distinct evolutionary histories—from microscopic atoms to macroscopic galaxies, from simple physical phenomena to complex living organisms, and even the elusive "self"-awareness of human individuals. How are these myriad "units of existence" understood and defined within the unified framework of *Relatedness Theory*? Do common organizational principles and dynamic laws exist among them?

This chapter aims to thoroughly elucidate the "Relatedness System (RS)"—the core concept in *Relatedness Theory* used to describe and understand all holistic,structured "units of existence." RS is not a simple adoption of the traditional concept of "system" but is endowed with profound connotations from *Relatedness Theory*. This chapter will focus on how an RS is defined, organized, and endowed with identity by its unique, governing "Central Commonality Reference (CRO)"; we will examine the world constituted by innumerable such RSs and how they interact against the background of a broader "Encompassing/Inclusive

Commonality Reference (ARO)"; and, we will particularly analyze "I" (the individual self, i.e., RS_Self)—a Relatedness System that is both special and possesses universal philosophical significance for *Relatedness Theory*—revealing *Relatedness Theory's* path to answering the fundamental question "Who am I?". Ultimately, this chapter aims to reveal the unified dynamics of RS (how it is driven by the "Existence-Evolution Paradox," EEP, leaving its imprint on the "Existence-Evolution Axis," EEA, and how "Global Bidirectional Self-Organization," BSO, operates within it), thereby highlighting the fundamental status of the RS concept in the entire cosmic tableau and individual understanding of *Relatedness Theory*.

6.1 The Core Essence of a Relatedness System (RS): The "Governing Domain" and "Identity Cornerstone" of a Central Commonality Reference (CRO)

The "Relatedness System (RS)" is the basic term in *Relatedness Theory* used to refer to those structured regions within "Relational Reality" that exhibit a certain degree of organizational integrity, operational coordination, and historical continuity. Understanding the core essence of an RS is key to grasping its indivisible, definitional relationship with a "Central Commonality Reference (CRO)." A CRO is not merely a component of an RS but the logical prerequisite and organizational core for it to become an identifiable and analyzable "system."

6.1.1 CRO as the Absolute Center and Logical Starting Point of an RS

In the analytical framework of *Relatedness Theory*, when we attempt to understand or define any specific "Relatedness System (RS)," the first logical step is necessarily to identify and establish its unique, dominant "Central Commonality Reference (CRO)." This CRO is for that RS its:

Organizing Core: The CRO embodies the most fundamental "commonality rules" and "organizational principles" of that RS. It is like a "center of gravity," whose "Defining Field" governs and shapes the connection patterns of all "Dependency Paths (DPs)" within the RS, the manifestation modes of "Relative Entities (REs)," and the operational logic of internal "Relatedness Levels (RLs)."

Identity Bestower: It is precisely the core commonality of the CRO that endows the RS it defines with a unique, distinguishable "identity" or "essential characteristic" (where "essence" here is still relational and dynamic, not fixed and unchanging). An RS is "this" RS and not "that" RS fundamentally because of what its core CRO is.

Boundary Demarcator: The effective range of influence of the CRO's "definitional power" largely defines the relative boundary between its RS and the external environment (the "Pure Nothingness" potentiality background relative to that RS, or other RSs).

It can be said that an RS *is* the "governing domain" and "field of rule realization" of its core CRO. Without a clear, dominant CRO, a

relational network might merely be a diffuse set of associations, hardly qualifying as a "system" with a specific identity and holism.

6.1.2 Precise Definition and Core Constitution of an RS (Centered on CRO)

Based on the central status of the CRO, we can give a precise definition of a "Relatedness System (RS)": A Relatedness System (RS) is, on the sole ontological basis of "Pure Being," triggered by the "Commonality Self-Activation Mechanism (CSAM)" (or its variants in system evolution) and emerging and sustained through the continuous operation and evolution of the "Global Bidirectional Self-Organization (BSO) mechanism," a dynamic, open, and usually internally hierarchical regional "Dependency Path (DPs)" network and the "Relative Entities (REs)" manifested under the "projection rules" of its CRO (and internal SROs), with a specific "Central Commonality Reference (CRO)" as its "existence basis," organizational core, and identity definer.

This definition includes several core constituent elements and characteristics of an RS, all centered on its CRO:

Ontological basis and generative mechanism: Rooted in "Pure Being," generated and evolved through CSAM and BSO.

Core definer: CRO: Every RS is defined in its "existence basis" and organizational core by a unique, dominant CRO.

Dynamism and openness: An RS is not a closed, static structure but continuously interacts with its environment (relative "Pure Nothingness" and other RSs) and evolves under the drive of EEP.

Usually possesses internal hierarchical structure: Complex RSs often contain multiple RLs defined by SROs, specialized functionally or structurally. The "specificity" of these SROs and RLs is relative to the "commonality" of their encompassing CRO.

Content: An RS is internally woven from a specific DPs network, and identifiable REs manifest under the "projection rules" of its CRO (and internal SROs).

6.1.3 The Openness and Boundary of an RS: The Dynamic Interface with Relative "Pure Nothingness"

Any "Relatedness System (RS)" defined by a CRO is an open system, continuously interacting with its external environment through its relative boundary. The most fundamental, and also most immediately

adjacent, part of this "external environment" is "Pure Nothingness (PN)" relative to that RS and its core CRO.

The boundary of an RS is defined by the range of its core CRO's "definitional power": The boundary of an RS is not a fixed physical "wall," but the outermost region where its core CRO's "Defining Field" can effectively exert influence, organize the DPs network, and maintain the stable manifestation of REs. This boundary is dynamic and permeable, its scope and clarity potentially changing with fluctuations in the CRO's own stability (T_CRO), changes in the RS's internal "evolutionary tension ((v))," and influences from the external environment.

Beyond the boundary lies "Pure Nothingness" relative to that RS: Beyond this boundary demarcated by the CRO's "definitional power" lies that infinite portion of "Pure Being's" potentiality not activated, organized, and incorporated into the structure of the current, specific RS by its core CRO. For this RS, this region is its relative "Pure Nothingness"—a background filled with possibilities unused by or incompatible with that RS.

An RS continuously interacts with "Pure Nothingness" (the potentiality background) via this dynamic interface: This boundary is an active interface through which the RS engages in an unceasing "dialogue" with "Pure Nothingness":

Absorption of potentiality: An RS (via its CR's "Defining Field" and "responsive activation" mechanism) may continuously activate new "Primordial Vectors (PVs)" compatible with its core commonality from the adjacent "Pure Nothingness," transforming them into new DPs, thereby expanding or repairing its internal network and maintaining its own structure and function.

Enduring "pressure" and exchange of information: Random fluctuations from the "Pure Nothingness" background and "Infinite Potentiality Pressure (IPP)" (as a source of (v) in EEP) will continuously "impact" the RS's boundary, potentially bringing it new information, new challenges, and also potentially threatening its stability.

Emission of "entropy" or exclusion of "waste" (conceptual): As a self-organizing system far from equilibrium, an RS, in maintaining its own ordered structure and conducting internal operations, may need to discharge certain "disorder," "conflict," or "no longer compatible patterns" generated internally beyond its "Pure Nothingness" boundary (this might correspond to entropy emission in physical systems). This

continuous interaction, mediated by the dynamic interface with relative "Pure Nothingness," is the fundamental guarantee for an RS, as an open system, to maintain its non-equilibrium steady state, exhibit adaptability, and ultimately achieve evolution and innovation.

6.2 Inward Specialization and Hierarchy: Specific Commonality Reference (SRO) as a Functional Subdomain (RL) within the CRO Framework

A "Relatedness System (RS)" defined by a "Central Commonality Reference (CRO)" is not necessarily a homogeneous, monolithic whole. On the contrary, many RSs of higher complexity (such as a biological organism, a social organization, or even a mature theoretical system) exhibit a high degree of internal structural differentiation and functional specialization. In *Relatedness Theory*, this further internal structurization and functional specialization within an RS is achieved through the emergence of "Specific Commonality References (SROs)" and the "Relatedness Levels (RLs)" they define. The understanding of SROs must be strictly placed under the framework of their encompassing CRO.

6.2.1 Relative Definition of SRO

A Specific Commonality Reference (SRO) is always relative to an already established Central Commonality Reference (CRO) that serves as its existential background and constraining framework. It is a more concrete Commonality Reference that spontaneously emerges (possibly through local, secondary CSAM-like processes or the refinement operations of the BSO mechanism) within the "Relatedness System (RS)" governed by that CRO, in order to realize a certain specific local function, process a certain specific type of information, or embody a certain local commonality rule that has stabilized on a smaller scale. An SRO does not exist independently of its CRO; its "specificity" is precisely relative to the more universal "commonality" defined by its CRO. It is a specialized branch or concrete implementation under the CRO's overall organizational principle.

6.2.2 Demarcation and Operation of SRO and "Relatedness Level (RL)"

Each stably emerged "Specific Commonality Reference (SRO)," within its encompassing "Relatedness System (RS)" (which is defined and governed by its core "Central Commonality Reference, CRO"), defines and organizes a relatively independent "Relatedness Level (RL)" through its own embodied specific "commonality rules" and inherent, more concrete "identifiability threshold."

This RL thus possesses its unique operational logic, stipulated by that SRO . This means that within that RL, the connection preferences of "Dependency Paths (DPs)," activation conditions (including whether they can reach the SRO's "identifiability threshold" to be stably incorporated into that RL's operation), manifested forms and attribute ranges of "Relative Entities (REs)" (these attributes also manifest under that SRO's "projection rules" and "identifiability threshold"), and their interaction rules, all primarily follow the rules embodied by this SRO as a reference.

The RL thereby also possesses its unique RE manifestation patterns and DPs network characteristics. For example, an SRO defining "preliminary visual information processing" (such as the specific neural circuit organizational principles of a certain area of the cerebral cortex, and its "identifiability threshold" setting for specific visual features), the REs within its RL might be representational patterns of specific edges, colors, movements, etc. (these patterns must reach that SRO's "identifiability threshold" to be stably manifested), and its DPs network would embody the specific neural connection topology for processing these features.

However, although each "Relatedness Level (RL)," under the reference and specification of its encompassing "Specific Commonality Reference (SRO)," exhibits operational relative autonomy and unique phenomenal characteristics, it, as a constituent unit, its existence and operation always remain subordinate to and serve the entirety of its encompassing "Relatedness System (RS)." More specifically, the operation of an RL, on the one hand, mechanistically contributes to the realization of the RS's overall functions or the maintenance of specific states through its particular outputs (e.g., information, energy, or structural influence); on the other hand, it is also necessarily integrated into the overall organizational principles and operational framework defined by that RS's core "Central Commonality Reference (CRO)" as a subsystem.

Therefore, the internal operational rules of an RL (embodied by its SRO) cannot fundamentally and irreconcilably conflict with the overall organizational principles of its encompassing RS (defined by the core CRO). Once such a conflict occurs and cannot be effectively resolved through the "Global Bidirectional Self-Organization (BSO) mechanism," it may lead to the destabilization of the SRO defining that RL, or even further intensify the "Existence-Evolution Paradox (EEP)" at the entire RS level, threatening the overall stability of the RS. Ultimately, the stable

existence and effective operation of any "Relatedness Level (RL)" profoundly depend on two fundamental conditions: first, its own organizational rules and operational modes must maintain logical and dynamic compatibility with the referential framework provided by the higher-level CRO; second, it must be able to effectively participate in the holistic operation of the "Global Bidirectional Self-Organization (BSO) mechanism" within the entire RS, achieving necessary coordination and interaction with other RLs and the core CRO.

6.2.3 Source of Internal Diversity and Complexity in an RS

The reason a "Relatedness System (RS)" defined by a single CRO can exhibit high internal diversity and complex holistic functions is precisely through the emergence, differentiation, and synergy of multiple different, possibly interacting, SROs and the RLs they define within it.

Differentiation: The CRO provides an overall framework within which different local regions or functional demands may give rise to different SROs, each responsible for handling a specific aspect of the RS's overall tasks.

Synergy: These RLs, organized by different SROs, are not completely isolated. They can exchange information, share resources, and work synergistically through horizontal DPs connections (permitted or facilitated by higher-order CRO rules), collectively achieving complex functions that only the RS as a whole can accomplish. For example, in a biological organism, the digestive system RL (defined by its SRO), the circulatory system RL (defined by its SRO), and the respiratory system RL (defined by its SRO) must work synergistically to maintain the energy metabolism of the entire organism (defined by CRO_Organism).

Possibility of hierarchical nesting: Some complex SROs themselves, within the RLs they define, may even further differentiate into more subordinate SROs, forming local hierarchical nested structures.

6.3 All Things are Systems: The World Composed of Innumerable Relatedness Systems (RSs) and their Interaction Under an Encompassing/Inclusive Commonality Reference (ARO)

In the cosmic tableau of *Relatedness Theory*, a singular, isolated "Relatedness System (RS)," though an important unit of analysis, does not capture the richness and complexity of the real world, which is more profoundly manifested in the interrelation, interaction, and co-evolution of innumerable such RSs.

6.3.1 The Cosmos as a Collection and Network of Multiple RSs

Relatedness Theory understands the world we experience (and even theoretically possible, unexperienced worlds) as a grand network or collection composed of innumerable "Relatedness Systems (RSs)" of different scales, natures, and degrees of complexity.

Each RS, regardless of its size or level (e.g., from an elementary particle RS, to an atomic RS, then to a molecular RS, a cellular RS, a biological organism RS, an ecological RS, a planetary RS, a galactic RS, and even the entire observable universe as a possible ultimate RS), is defined and organized by its own unique "Central Commonality Reference (CRO)."

These RSs collectively populate the potentiality space of "Pure Being" and are concrete, structured manifestations of "Relational Reality" in different regions and at different levels. The world is not rigidly stipulated from top to bottom by a single, unified set of laws and structures, but is co-shaped by the coexistence, interaction, and evolution of these RSs, which possess relative autonomy (endowed by their CROs).

6.3.2 Dependency Paths (DPs) and Interactions Between RSs

Different "Relatedness Systems (RSs)" are not absolutely isolated "islands." They can engage in various forms of interaction through Dependency Paths (DPs) that cross their respective boundaries (relative to their own CROs) with "Pure Nothingness":

Information exchange: A change in the state of one RS or the "signals" it produces (patterned DPs flows) can serve as informational input to another RS, influencing the latter's internal state or behavior.

Energy/matter flow (if applicable): Between physical or biological RSs, there may be exchanges of energy or matter via DPs (such as physical contact, chemical bonding, gravitational interaction, ecological chains, etc.).

Causal influence: The evolution of one RS (e.g., the reconstruction of its core CRO) or the macroscopic effects it produces may, through a series of DPs, exert significant causal influence on the stability, structure, or evolutionary path of another (or multiple) RS(s).

Formation of "meta-systems" or dynamic relatedness: If multiple RSs establish continuous, stable DPs networks with specific interaction rules between them, they themselves may collectively constitute a larger-scale, more complex "meta-Relatedness System" (whose overall behavior might require a new, higher-order CRO or ARO to describe) or a kind of dynamic cluster of relatedness.

6.3.3 Encompassing/Inclusive Commonality Reference (ARO): The Macroscopic Context of Multi-RS Interaction and its Dynamic Construction

When multiple "Relatedness Systems (RSs)" interact, or when we attempt to understand the operational background and evolutionary constraints of a specific RS (defined by its core CRO_Focus), a broader referential framework needs to be introduced—this is the role of the "Encompassing/Inclusive Commonality Reference (ARO)." An ARO is not a pre-existing, immutable background "container," but a crucial, dynamic constituent of *Relatedness Theory's* hierarchical reference system.

1. Relative definition and core functions of ARO:

An Encompassing/Inclusive Commonality Reference (ARO) is always relative to a selected focal RS or group of RSs (defined by their respective core CRO_Focus). It refers to those reference systems that logically or factually encompass these focal RS(s) and provide them with a broader, more fundamental, or higher-level framework of operational rules, constraint conditions, resource environments, or shared meaning spaces for their existence, operation, and evolution.

An ARO itself is usually a more grandiose "Relatedness System (RS)," possessing its own Central Commonality Reference (CRO_of_Encompassing_System) that defines that vaster context. The "encompassing" or "universal" nature of an ARO is relative to the focal RS; it demarcates a "meta-context" that transcends the direct boundaries of that focal RS. Its inherent "identifiability threshold" may be more

abstract, more inclusive, or, in some cases, define the upper limit of "visibility" from which the focal RS can draw information or be influenced.

The ARO, through the more universal "commonality rules" it embodies and the macroscopic environment it demarcates, sets boundary conditions, resource supply rules, selection pressures and value references, and the possibility space for evolution for the focal RSs contained within it, and may indirectly affect their stability limits.

2. Core characteristics of ARO: Interactive constructability and multifaceted referencing.

The key to profoundly understanding ARO is that its manifestation, content, and meaning profoundly depend on the continuous interaction between the various RSs (defined by their respective CROs) it contains and the construction of their respective referential perspectives. This reflects the operation of the "Global Bidirectional Self-Organization (BSO) mechanism" at a higher level.

Interactive Construction:

When two or more independent (or previously weakly related) RSs (each with its core CRO) begin to establish effective "Dependency Paths (DPs)" and engage in continuous interaction, their interaction itself may, through the BSO mechanism, give rise to or co-construct a new, shared ARO. This ARO is not a pre-existing "higher-level box," but rather that vaster referential context which these RSs, in the process of interaction—to establish a common referential basis (e.g., a common language, shared values, common understanding of physical laws), coordinate behavior, allocate resources, or define shared meaning spaces—collectively "weave," shape, or jointly point towards.

For example, the scientific community, through processes such as academic exchange, experimental verification, and theoretical debate, collectively constructs and maintains a "Scientific Knowledge System ARO." This ARO provides research paradigms, evaluation standards, and a shared picture of reality for all participating scientist RSs (defined by their CRO_Scientist) within it.

Multifaceted Referencing:

Even if a seemingly "common" ARO exists, one that in some sense pre-exists specific internal RSs (e.g., the "Earth's Geophysical Environment ARO"), different internal RSs (through their respective

CROs and inherent "identifiability thresholds") will, based on their own internal rule structures, historical experiences (EEA trajectories), information processing methods, and "existence strategies," selectively reference, interpret, and manifest different facets, different "effective rule subsets," and different "relative meanings" from the vaster "rule potentiality" background or reference system represented by the same ARO.

An ARO is like a complex prism; each internal RS is like a unique ray of light, illuminating it from a different angle, thereby refracting different pictures. For example, for a bird, a deer, and a tree (each an RS with a different CRO) living in the same forest ARO, the "laws of survival," "resource distribution information," "danger signals," and their modes of interaction (DPs) with this forest ARO that are manifested to them are entirely different. What each "experiences" and "constructs" is a version of the ARO filtered, interpreted, and endowed with specific subject-relevant meaning by its own CRO's "Defining Field" and "cognitive framework." There is no ARO that is independent of these internal RSs and "presents a unique objective face to all members."

Interaction as the reshaping of "Pure Nothingness" boundaries and the generation of new CRs:

The interaction between RSs, and between an RS and its ARO, is not merely a passive adaptation to the ARO. It simultaneously reshapes the participating parties' cognitive boundaries regarding "Pure Nothingness" (the potentiality unactivated and unorganized by their own CRs). Interaction may activate new potentialities previously in a state of "Pure Nothingness," generate new DPs connections, and, under the synergistic effect of BSO and the "Commonality Self-Activation Mechanism (CSAM)," potentially give rise to a large number of new, temporary or persistent, SROs and CROs. These new CRs will, in turn, further define new interaction modes and possibilities, and may collectively participate in the further construction or reinterpretation of the ARO.

This interactive constructability and multifaceted referencing mechanism of ARO profoundly manifests the infinite creativity and thoroughgoing relatedness of the cosmos in *Relatedness Theory*. It implies that the structure and meaning of the cosmos are not immutable but are an unending process of continuously creating and reconstructing reference systems (CRs) and meaning through the sustained interaction

between RSs at different levels and scales. Any ARO may, in broader interactions, become the CRO or SRO of another, more grandiose system (unless we return to "Pure Being" itself, which encompasses all possibilities and transcends any specific specification, but "Pure Being" is beyond the category of CR). This highlights the thoroughly relational, constructivist, and processual cosmology of *Relatedness Theory*.

3. Examples of ARO:

When we select a "human individual" (defined by their core self-reference, CRO_Self) as the focal RS, its possible AROs include:

ARO_Family/SocialGroup: Provides the most initial, most direct inclusive framework.

ARO_CulturalSystem: Provides broader meaning and constraints.

ARO_EcologicalNiche: Provides material basis and environmental constraints.

ARO_PhysicalCosmos: Provides the ultimate, broadest operational framework.

(Each ARO is defined by its own, higher-order CRO's core rules.)

When two or more originally relatively independent "Relatedness Systems," RS_A (defined by CRO_A) and RS_B (defined by CRO_B), engage in sustained, meaningful interaction (e.g., corporate collaboration, national diplomacy, theoretical dialogue):

Their interaction itself may, through the BSO mechanism, probabilistically and spontaneously give rise to and co-construct an entirely new, shared "Interaction Field ARO" or "Common Endeavor ARO." This ARO might initially be temporary or preliminary, but with the deepening and stabilization of interaction, it may develop more complex and persistent structures and rules, even giving rise to a new, higher-order CRO_AB to govern this "meta-system" formed by the joint participation of A and B. However, A's and B's understanding of and interaction with this new ARO will still be profoundly influenced by their respective original CRO_A and CRO_B. The formation and evolution of this ARO is itself a complex dynamic process filled with BSO-driven negotiation, conflict, adaptation, and co-creation.

6.4 "I" as a Relatedness System: The "Self" (RS_Self) as a Core Reference in a Relational World

The "Relatedness System (RS)," as the basic unit in *Relatedness Theory* for describing structured existence possessing holism, identity, and boundaries, finds one of its most philosophically profound and individually resonant applications in attempting to understand the human "self" or "I"—this fundamental form of existence—within its framework. This section will specifically explore how "I" is understood, from the perspective of *Relatedness Theory*, as a unique "Relatedness System (RS_Self)" centered on a "Core Self-Reference (CRO_Self)," and how this understanding provides a new, relation-based answer to the age-old question, "Who am I?"

6.4.1 *Relatedness Theory's* Ultimate Answer to "Who Am I?": "I" am a Unique Relatedness System (RS_Self) with a "Core Self-Reference (CRO_Self)" as its Organizational Center and Identity Cornerstone.

Traditional conceptions often view the "I" or "self" as an internal, fixed entity possessing some unchanging essence (such as a soul, a spiritual core, or a specific conscious substrate). *Relatedness Theory*, however, thoroughly abandons this entity-based presupposition. To the fundamental question "Who am I?", the ultimate answer given by *Relatedness Theory* is: "I" am not an isolated, static "thing," but an extremely complex, dynamically evolving "Relatedness System (RS_Self)" centered on a self-organized emergent "Core Self-Reference (Common/Core Self-Reference Object, CRO_Self)" as its organizational center and identity cornerstone. This RS_Self encompasses all levels constituting our individual existence—from the physical body to abstract thought, from inner experience to outer social roles—but its "unity" and "sense of self" do not originate from some internal "ego-entity." Instead, they emerge from the integrative and referential functions of its core CRO_Self. To understand "Who am I?", in *Relatedness Theory*, translates into understanding the constitution of this RS_Self, the nature and operational mechanism of its core CRO_Self, and how it interacts with other RSs (such as other people, society, and the environment) and continuously evolves along its own "Existence-Evolution Axis."

6.4.2 The Internal Hierarchical Structure and Complex Operation of RS_Self

This unique RS_Self, "I," exhibits a highly complex and subtle internal hierarchical structure. It integrates multiple interconnected "Relatedness Levels (RLs)"—spanning from the most fundamental physico-chemical level to the highest-order socio-cultural level—which continuously interact via the "Global Bidirectional Self-Organization (BSO) mechanism." Each RL may be organized by its internal, specific "Specific Commonality References (SROs)":

Physico-Chemical RL: The interactions of atoms and molecules constituting "my" physical basis follow fundamental physico-chemical rules (which can be considered SROs of this level).

Physiological-Neurological RL: The life activities of cells, tissues, and organs, especially the structure and function of the nervous system (e.g., specific neural circuits, neurotransmitter systems can be defined by their respective SROs), constitute the "hardware" basis for "my" life sustenance and information processing.

Psychological-Cognitive RL: Complex psychological and cognitive processes such as thought, emotion, memory, belief, perceptual processing, language comprehension, and logical reasoning. Each specific cognitive functional module (e.g., working memory system, different types of long-term memory, specific emotional response patterns, conceptual networks) may be defined and organized by its internal SROs (e.g., specific neural activation pattern rules, abstract rules of information processing algorithms, or learned cognitive strategies).

Socio-Cultural RL: The roles played by the individual in family, community, and culture; the rights and obligations undertaken; the internalized social norms, value concepts, and cultural scripts. These are also influenced and shaped by corresponding socio-cultural SROs (such as family norms, professional ethics, legal principles, cultural narrative patterns) and profoundly participate in the construction of "my" identity.

The Core Self-Reference (CRO_Self), as the highest-order cognitive integration core, plays a crucial role: it does not simply superimpose the information and operations of these different levels. Rather, as a dynamic, self-referential framework, it integrates the heterogeneous "Dependency Path (DPs)" information flows and "Relative Entity (REs)" patterns from these multiple RLs (physical, physiological, psychological, social, etc.) into a whole possessing relative continuity, unity, and first-person subjective experience. The CRO_Self endows these

multifarious internal and external experiences (thoughts, emotions, perceptions, memories, bodily sensations, social interactions, etc.) with a sense of belonging and meaning: "this is 'my' experience," "this is related to 'me'." It is the "centripetal force" and "center of meaning" of the subjective world.

6.4.3 "The World is a Relatedness System, and I am its Central Reference": The Profound Connotation in *Relatedness Theory* Revealing the Relationship Between the Individual Self (RS_Self) and the "World" it Experiences.

From the perspective of RS_Self, the "world" it experiences (including the external physical environment, social environment, and its own internal states) is not an object independent of "me" that can be objectively "reflected" directly. On the contrary, this "world" perceived by "me" is a subjective reality actively constructed by "me," this RS_Self, through its core CRO_Self (and other auxiliary cognitive SROs, such as perceptual patterns, conceptual frameworks, linguistic structures, etc.), by actively and non-teleologically selecting, filtering, organizing, interpreting, and imparting meaning to the innumerable "Dependency Path (DPs)" information flows (i.e., various stimuli, signals, interactions) from external and internal sources.

The CRO_Self is the "origin point" and "(logical) coordinate system" of this subjective experiential world. All DPs information input into "me," this RS_Self, and the cognitive "Relative Entities (REs)" formed internally (such as a thought, a memory, an emotional judgment)—their relevance, salience, value, and meaning—are all evaluated and positioned relative to this core "me" (CRO_Self). External objects are perceived as "in front of me/related to me"; events are experienced as "beneficial to me/threatening to me"; others' behaviors are understood as "directed at me/in dialogue with me"—all because of the existence of this CRO_Self referential framework. Therefore, "my world" is "mine" because it is the sum total of relations referenced, organized, and endowed with meaning by "me," this unique CRO_Self. Different individuals (possessing different CRO_Selfs, originating from their unique genetic makeup, experiences, and evolutionary histories), even when facing the same "external stimuli," may construct subjective worlds that differ in content, structure, and meaning.

6.4.4 The Dynamic Evolution of RS_Self: The "Existence-Evolution Axis (EEA_Self)" of an Individual's Life Course

This Relatedness System (RS_Self), "I," is by no means an immutable static structure; it is a continuously, dynamically evolving process throughout an individual's entire life course.

Individual life as the unfolding of EEA_Self: Learning new knowledge, accumulating experience, developing skills, establishing and changing social relations, undergoing significant successes and setbacks, having profound epiphanies, and transformations in core values and life beliefs, etc.—these constitute the rich content of an individual's life history. In the view of *Relatedness Theory*, these all correspond to structural reconstructions and "existence basis" leaps of RS_Self (especially its core CRO_Self or its internal key cognitive/emotional SROs) on its individual "Existence-Evolution Axis (EEA_Self)," driven by its intrinsic "Existence-Evolution Paradox (EEP)" (e.g., the tension between dissatisfaction with the existing cognitive framework and the need to maintain the stability of self-identity; the conflict between the pressure to adapt to new environments and the inertia of adhering to old behavioral patterns).

Learning and growth as CR evolution: Every effective learning experience or profound personal growth may signify some degree of adjustment, optimization, or expansion in the rules, structure, or connection patterns of CRO_Self or relevant SROs, enabling it to integrate broader information, more effectively cope with internal and external challenges, or construct a richer, more self-consistent world of meaning.

Trauma and crisis as EEP intensification: Major psychological traumas or life crises may correspond to a sharp intensification of the EEP contradictions faced by CRO_Self, leading to the destabilization or even disintegration of its original stable structure (old self-identity, core beliefs) (corresponding to a "transition node" on EEA_Self). This is usually accompanied by chaos, pain, and an identity crisis, but it also provides an opportunity for the emergence and reconstruction of a new, possibly more resilient or profound CRO_Self (CSAM-like mechanisms may reactivate at the cognitive level).

The birth and death of an individual: The beginning and end of CRO_Self's period of definitional power: From the perspective of *Relatedness Theory*, the "birth" of an individual can be understood as the event where that unique "Core Self-Reference (CRO_Self)"—capable of organizing specific individual life phenomena and subjective experience—

successfully emerges through some (possibly extremely complex at biological and socio-cultural levels) CSAM process and begins its "period of definitional power (T_CRO_Self)." And the "death" (physiological demise) of an individual can be understood as the event where this CRO_Self, the organizational core maintaining RS_Self as a unified whole, completely ends its "definitional power" due to the natural exhaustion of its T_CRO_Self (e.g., due to physiological decline rendering it unable to maintain the necessary DPs network and REs manifestation) or encountering unbearable internal or external shocks (such as fatal illness or accident). This leads to the disintegration of this specific relational pattern of RS_Self, and its constituent (generalized) potentiality (e.g., the body's material elements returning to natural cycles; the information and influences it generated, if recorded or remembered, potentially integrating in other forms into broader relational networks) returns to the background of "Pure Nothingness" (relative to this deceased RS_Self).

This tableau of "I" as a Relatedness System (RS_Self) profoundly embodies *Relatedness Theory's* view of existence as a dynamic, relational, hierarchical, and processual unity. It provides a new philosophical framework for understanding the complexity, plasticity, social constructivity of the human self, and its unique position in the cosmos.

6.5 Unified Dynamics of Relatedness Systems (RSs): Existence-Evolution Paradox (EEP), Existence-Evolution Axis (EEA), and Global Bidirectional Self-Organization (BSO)

Having elucidated the core essence of a "Relatedness System (RS)," its internal structure (centered on a CRO, containing SROs/RLs), its interaction with the external (via the "Pure Nothingness" boundary and in relation to other RSs within an ARO framework), and its application in understanding the special case of the "self," we now need to return to a more universal level to explore the unified dynamic principles that drive all "Relatedness Systems (RSs)"—regardless of their scale, nature, and complexity—to undergo dynamic evolution and structural reconstruction. These principles are precisely the core of *Relatedness Theory*: the Existence-Evolution Paradox (EEP), the Existence-Evolution Axis (EEA), and Global Bidirectional Self-Organization (BSO).

6.5.1 EEP as the Fundamental Driving Force for the Overall Evolution of an RS

Any finite, structured "Relatedness System (RS)," as a dynamic relational whole defined by its core CRO and manifested against the background of "Pure Being" potentiality, is necessarily and inevitably driven by the "Existence-Evolution Paradox (EEP)."

The core conflict of EEP at the RS level: The core of EEP lies in the fact that an RS, as a whole, necessarily possesses an overall "evolutionary rate/tension ((v))" that tends towards change, exploration of new states, and response to internal and external perturbations. This (v) originates from multiple ontological factors: the incompleteness and intrinsic tension of its core CRO's rule definition, the spontaneous fluidity of the DPs network constituting the RS, and the adaptive pressure and novelty input brought by the RS's continuous interaction with the "Pure Nothingness" potentiality background and other RSs/AROs as an open system. On the other hand, for an RS to persist as an identifiable "system" with a specific identity and function, its core CRO must maintain the stability of its structure and the effectiveness of its rules within a certain "period of definitional power (T_CRO)." However, maintaining this stability is not without cost.

Prudent introduction of the philosophical principles of maintenance cost (h(T)) and entropy production extremum (C_max): As mentioned when discussing the dynamic lifecycle of CRs in section 4.4.2, *Relatedness Theory's* exploratory formalization framework (not specifically covered in this book), in order to more concretely characterize this "cost of existence," proposes the concept of "maintenance cost (h(T))" and assumes its superlinear growth with T_CRO. Simultaneously, this exploratory framework further speculates that any RS has a structural upper limit C_max for the internal "activity flux" or generalized "total entropy production rate (Σ)" it can bear and regulate (i.e., the EPE constraint: $\Sigma \leq C_{max}$). Understanding these two concepts from a purely philosophical principled level, we can say:

The cost of existence (philosophical correspondence of h(T)): Any finite, ordered, structured existence (RS), in order to resist internal (e.g., rule conflicts, relational fluidity) and external (e.g., potentiality encroachment, environmental changes) tendencies towards disintegration and to maintain the coherence and effectiveness of its core organizational principle (CRO), needs to continuously engage in some form of "organizational effort," "information processing," or "structural repair." The degree of this "effort" (i.e., "cost") increases sharply (possibly superlinearly) with the desired level of stability (i.e., the length of T_CRO). This is the inherent, unavoidable "tension" or "burden" for finite existence in pursuit of "persistence."

The existence-bearing capacity limit (philosophical correspondence of C_max): Any RS defined by a specific CRO, as a concrete, finite, structured existence, its overall "capacity" or "efficiency" to organize information, transmit influence, manage internal conflicts, and effectively interact with the environment is necessarily finite. This "capacity limit," determined by the structural complexity, organizational efficiency, and intrinsic stability of its core CRO, is the limit of internal "activity intensity" or "existential stress" it can bear. EEP is precisely the eternal conflict between the RS's overall "evolutionary tension ((v))" and this "effort of persistence and its cost (T_CRO/h(T))" under the constraint of its inherent "capacity limit (C_max)." This conflict forces any RS to be unable to remain permanently static but to constantly undergo dynamic adjustments and experience fundamental structural reconstructions when contradictions intensify.

6.5.2 EEA as the Historical Record of RS Core CRO Replacement and "Existence Paradigm" Transformation

The "Existence-Evolution Axis (EEA)" is the non-linear historical trajectory recording a series of fundamental, structural transformations (destabilization, disintegration, and reconstruction into a new CRO' via CSAM/BSO mechanisms) experienced by the core "Central Commonality Reference (CRO)"—which defines the "existence basis"—of a "Relatedness System (RS)" throughout its entire lifecycle.

"Stable periods" and "transition nodes" of an RS: An RS evolves along its unique EEA, alternating between relatively stable "plateau phases" (during which its core CRO's T_CRO has not yet been exhausted, and the RS's overall organizational principles and operational paradigm remain relatively unchanged) and periods of drastic transformation, or "transition nodes" (during which the old CRO destabilizes due to the intensification of EEP contradictions, and the RS undergoes chaotic exploration and gives rise to a new core CRO', thereby entering a new "existence paradigm").

EEA focuses on the overall historical trajectory of an RS: The EEA is not merely the evolutionary history of CRs, but rather the history of transformation of the "existence paradigm" of the entire RS as a dynamic relational whole, marked by the succession of CRs. It records how an RS, through fundamental transformations of its core organizational principles, adapts to internal and external pressures, explores new possibilities, and continues its structured existence against the background of "Pure Being."

6.5.3 BSO as the Fundamental Organizing Principle for Interactions within an RS (Between RLs/REs/DPs) and Between an RS and its External Environment ("Pure Nothingness," Other RSs/AROs)

The "Global Bidirectional Self-Organization (BSO) mechanism" is the fundamental organizing principle in *Relatedness Theory* that explains how an RS operates and evolves as a complex, hierarchical, open dynamic whole.

Maintaining the dynamic equilibrium of an RS: During the "plateau phase" of the EEA, the BSO mechanism, through continuous, all-encompassing mutual determination and modulation among the constituent elements within the RS (its core CRO, internal SROs/RLs, manifested REs, and the DPs network weaving them), maintains the overall steady state of the RS (within the framework defined by its core

CRO) and makes adaptive adjustments to minor internal perturbations and routine changes from the external environment.

Coordinating the internal operations of an RS: BSO ensures smooth information flow, functional synergy, and relatively reasonable allocation of resources (in a broad sense) between different levels within the RS (integration and constraint of SROs by CRO, organization of RLs by SROs) as well as between different modules at the same level.

Driving adaptive adjustments and structural reconstruction of an RS: When the internal and external pressures faced by an RS (i.e., (v) in EEP) increase, or when its core CRO's T_CRO approaches exhaustion, the BSO mechanism will govern the reorganization of the RS's internal DPs network, changes in REs patterns, and (at "transition nodes" of the EEA) the destabilization of the core CRO itself and the exploration and emergence of a new CRO'. The adaptive evolution and fundamental transformations of an RS are all realized through this intrinsic, decentralized, non-teleological organizing process of BSO.

Mediating the interaction between an RS and its external environment: An RS, as an open system, continuously interacts with its external environment through its dynamic interface with relative "Pure Nothingness" and its Dependency Path connections with other RSs/AROs within a broader ARO framework. The BSO mechanism also regulates these interactive processes that cross RS boundaries, such as how an RS "responsively activates" new potentialities from "Pure Nothingness," how it adapts to the constraints imposed and opportunities provided by its ARO, and how it co-evolves in interaction with other RSs.

EEP provides the "why" of RS evolution (intrinsic contradiction drive), EEA depicts the "whereto" of RS evolution (historical trajectory and paradigm shift), and BSO explains the "how" of RS evolution (specific organizational and interactive mechanisms). These three together constitute the core content of *Relatedness Theory* regarding the unified dynamics of "Relatedness Systems."

6.6Dual Identity of "Objects of Existence": The Relative Distinction Between RS and RE and its Referential Basis

To further elucidate the connection between "Relatedness System (RS)," "Central Commonality Reference (CRO)," and "Relative Entity (RE)," "Specific Commonality Reference (SRO)," *Relatedness Theory* introduces a universal principle regarding the classification of "objects of existence."

This principle states: —Any identifiable "object of existence," from the perspective of *Relatedness Theory*, can be conceptually identified as either a "Relatedness System (RS)" or a "Relative Entity (RE)" (this depends on whether we consider it as defined by its own core organizational principle, the CRO, or as a phenomenal pattern projected by a specific SRO within a higher-level RS).

Those "objects" that exhibit a clear identity and operational logic when we analyze their own holistic organizational principle as the core CRO (e.g., a living cell, a person, a social organization, a theoretical paradigm) are usually understood as an RS.

Whereas, when we start from within an established RS (defined by its CRO) and, through one of its local SROs (defining a specific "Relatedness Level," RL) and its "projection rules," identify those relatively stable "parts," "components," or "phenomena" (e.g., mitochondria defined by an SRO within the cell RS; a department defined by an SRO within the social organization RS; a core concept defined by an SRO within the theoretical paradigm RS; or an independent large tree defined by an SRO within "I," this RS), these then correspond to an RE.

This distinction is always relative, depending on the scale of analysis and the focal CR we choose (whether we regard it as the CRO defining the whole, or as the SRO defining a local projection).

6.7 Relatedness System (RS): The Core Unit for Dynamic Combination, Boundary Expansion, and Functional Emergence

Introduction: Evolution from Independent Units to Composite Systems

In the cosmic tableau of *Relatedness Theory*, the "Relatedness System (RS)" is the fundamental unit of structured existence. From an atom, a cell, to a person, a society, and even the cosmos we inhabit, all can be understood as the sum total of a dynamic, open "Dependency Path (DPs)" network and the "Relative Entities (REs)" manifested thereupon, defined by their own core "Central Commonality Reference (CRO)."

However, an RS is not an isolated, static "building block." Its most profound characteristic lies in its openness and dynamic combinability—that is, different RSs can, by establishing new DPs connections, collectively constitute a "composite Relatedness System" with more powerful functions and a more complex structure. The universal phenomenon of humans expanding cognitive boundaries with the aid of tools provides a perfect paradigm for understanding this core essence of RS.

I. Initial State: Two Independent "Relatedness Systems (RSs)" a nd their Boundaries

In our paradigm, two initially independent RSs exist, each possessing its unique CR and capability boundaries determined by its "Identifiability Threshold (IT)":

RS_Human (Human System): This is an extremely complex bio-cognitive Relatedness System defined by its core CRO_Self. Internally, it contains a "Relatedness Level (RL)" defining visual perception, organized by a specific CR_Vision (which can be considered an SRO). The "commonality rules" of CR_Vision, shaped through long biological evolution (a unique EEA process), determine that this system can only effectively interact with electromagnetic wave DPs within a specific frequency range (visible light) and "project" them as the RE of "visual imagery." For radio wave DPs, with which its rules are incompatible, RS_Human is "blind"; these DPs belong to its relative "Pure Nothingness (PN)."

RS_Tool (Radio Telescope System): This is a relatively simple artificial Relatedness System defined by its CR_Tool (e.g., its physical design principles, electronics laws, signal processing algorithms). Its core function lies precisely in that its CR_Tool's "commonality rules" can effectively interact with radio wave DPs and process this information according to its internal rules.
In the initial state, these two RSs are separate, and RS_Human's cognitive boundary is locked by the intrinsic limitations of its CR_Vision.

II. Emergence of a Composite System: RS Combination Driven by "Global Bidirectional Self-Organization (BSO)"

When RS_Human begins to use RS_Tool, an entirely new, higher-order composite system—RS_Human+Tool—emerges transiently through the mechanism of "Global Bidirectional Self-Organization (BSO)." The key to this process lies in the establishment of new Dependency Paths (DPs):
RS_Human inputs instructions to RS_Tool through operational actions (such as adjusting telescope direction, setting parameters); this is a set of control DPs.
RS_Tool, via its display screen or speaker, outputs processed signals as visible light or sound waves to RS_Human's sensory system; this is a set of data DPs.
The cognitive system of RS_Human and the physical system of RS_Tool, through this series of newly established, bidirectional DPs, form a functionally tightly coupled, unified whole.
This profoundly embodies the openness and combinability of RSs: the boundaries of RSs are dynamic and permeable; they can, by establishing new DPs connections, integrate with other RSs into a "meta-system" possessing entirely new holistic functions.

III. Emergence of a Composite CR and "Translation-Reprojection" of REs: The Core Mechanism of Functional Emergence

This newly formed RS_Human+Tool does not operate under the unilateral dominance of either CR_Human or CR_Tool. Instead, a new, composite CR emerges, which we may call CR_Composite. This composite CR integrates the core rules of the two subsystems and establishes an entirely new information processing flow, the core of which lies in the "translation-reprojection" of REs:

First Projection (within RS_Tool): The RS_Tool subsystem, under the reference of its CR_Tool, first "projects" the radio wave DPs from the

cosmos—invisible to RS_Human—into an entirely new, intermediate form of "Relative Entity (RE)": for example, RE_Image (a false-color image) on a display screen. This RE_Image is the first-layer "translation" and manifestation of the original radio wave information.

Second Projection (within RS_Human): This intermediate RE (RE_Image) produced by the tool now, as a set of entirely new visible light DPs compatible with the rules of RS_Human's internal CR_Vision, is input into RS_Human's perceptual system. RS_Human's cognitive system can now, according to its own CRs (such as CR_Vision and higher-order cognitive CRs), "re-project" the received RE_Image into a final internal cognitive entity that can be understood at the conscious level—RE_Cognitive_Understanding (e.g., "I 'see' a distant nebula").

RE_Image here plays a crucial role as an information "translation intermediary." It successfully "translates" information incompatible with the subject's cognitive CR (radio waves) into another compatible, processable form of information (image). This reveals the emergence of a new function: neither RS_Human alone nor RS_Tool alone possesses the function of "enabling humans to understand radio waves," but the RS_Human+Tool they combine to form, through the translation-reprojection mechanism of REs, gives rise to this entirely new holistic capability.

IV. System Combination from an Evolutionary Dynamics Perspective: Structural Reconstruction Driven by EEP

Finally, we must, from first principles, answer a fundamental question: Why does RS_Human engage in such combination? This does not originate from some teleological "desire to know," but is a dynamic consequence driven by its intrinsic "Existence-Evolution Paradox (EEP)."

EEP_Cognitive Crisis: We can imagine that before the creation of radio telescopes, humanity's scientific cognitive system (a grand RS_Science) faced an EEP crisis. Its existing CR_Optical_Astronomy (optical astronomy paradigm) could not explain an increasing number of "anomalous" cosmic phenomena (intensification of v); the "cost (h(T))" of maintaining the old paradigm was becoming increasingly high, and the "existence-bearing capacity (C_max)" of the entire cognitive system was challenged.

Dynamic Product of Structural Reconstruction: To alleviate this unbearable EEP tension, the system entered a "transition node" on its EEA_Science. Through the chaotic exploration of BSO, creating and forming a composite system with RS_Tool was one of the structural

reconstruction schemes that probabilistically emerged for RS_Science in its search for new dynamic stability.

Expansion of Cognitive Boundaries as an Inevitable Consequence: This new RS_Human+Tool composite system and its emergent CR_Composite successfully incorporated the original "anomalies" (radio waves) into the explainable domain, thereby temporarily alleviating the EEP_Cognitive contradiction in a new, broader "plateau phase." In this process, the expansion of cognitive boundaries was not its "goal," but an inevitable, yet "by-product"-like dynamic consequence of the RS undergoing structural reconstruction to resolve the fundamental paradox of its existence and evolution.

Conclusion

The "Relatedness System (RS)," as the core unit of *Relatedness Theory*, is intrinsically dynamic and evolutionary. Through the paradigm of the "human-machine" composite system, we see profoundly that: RSs can, via the BSO mechanism, establish new DPs connections and dynamically combine with other RSs into "meta-systems" possessing entirely new functions; the core mechanism of this combination lies in the emergence of a new composite CR and the achievement of a leap in information processing capability through the "translation-reprojection" of REs. And the fundamental driving force for all this combination and evolution originates from the RS's own unavoidable "Existence-Evolution Paradox (EEP)." The expansion of cognitive boundaries, and indeed the entire evolution of human civilization, can be understood as the grand historical process of RS_Human continuously undergoing structural reconstruction and system combination, eternally driven by EEP.

6.8Chapter Summary: Relatedness System—Relatedness Theory's Unified Perspective for Understanding Structured Existence and its Dynamic Evolution

This chapter has thoroughly and systematically elucidated the "Relatedness System (RS)," the core concept in *Relatedness Theory* used to describe and understand all structured "units of existence" possessing holism, identity boundaries, and dynamic evolutionary characteristics. As the fundamental "actor" in the cosmic tableau of *Relatedness Theory*, understanding the RS is crucial for grasping the essence of the entire theoretical system.

We first established the core essence of an RS: it is a dynamic, open, and usually internally hierarchical regional "Dependency Path (DPs)" network and the "Relative Entities (REs)" manifested under the "projection rules" of its CRO (and internal SROs), with its unique, dominant "Central Commonality Reference (CRO)" as its "existence basis," organizational core, and identity bestower. The boundary of an RS is defined by the range of its core CRO's "definitional power"; beyond this boundary lies "Pure Nothingness" relative to that RS, and the RS continuously interacts with its potentiality background via this dynamic interface.

This chapter further emphasized the universality of the RS concept. From microscopic elementary particle structures to macroscopic cosmic galaxies, from non-living physico-chemical systems to complex living organisms, and even the unique "self-awareness" (RS_Self) of human individuals, as well as human social and cultural constructs—all can be understood, from the perspective of *Relatedness Theory*, as specific "Relatedness Systems (RSs)" operating at different scales and levels of abstraction. The principle that "any object of existence can be identified as either a Relatedness System or a Relative Entity" highlights the universal applicability of RS as the basic framework in *Relatedness Theory* for analyzing and understanding all things in the cosmos. We also explored the world constituted by innumerable such RSs and how they engage in complex interactions, mutual shaping, and even co-construction against the background of a broader "Encompassing/Inclusive Commonality Reference (ARO)" (which itself is often a higher-order RS).

Subsequently, we focused on analyzing the special and important case of "I" as a Relatedness System (RS_Self), revealing *Relatedness Theory's* path to answering the fundamental question "Who am I?": understanding

"I" as a unique RS integrating multiple relatedness levels from physico-chemical to socio-cultural, with a "Core Self-Reference (CRO_Self)" as its organizational center and identity cornerstone. We elucidated the profound connotation of the assertion "The world is a Relatedness System, and I am its central reference," meaning that an individual's subjective reality is actively constructed by their CRO_Self. Furthermore, the dynamic evolution of RS_Self, i.e., an individual's life course, is understood as a process of structural reconstruction and "existence basis" transition on its unique "Existence-Evolution Axis (EEA_Self)," driven by the "Existence-Evolution Paradox (EEP)."

Finally, this chapter systematically expounded the unified dynamic principles driving the evolution of all RSs:

The Existence-Evolution Paradox (EEP): As the fundamental driving force for the overall evolution of an RS, it embodies the eternal conflict between the RS system's overall "evolutionary rate/tension ((v))" and its core CRO's "period of definitional power (T_CRO)" and "maintenance cost (h(T))" (a concept proposed in *Relatedness Theory's* exploratory formalization framework, referring philosophically to the cost, which increases superlinearly with stability requirements, of maintaining stability), with this conflict operating under the fundamental constraint of the RS's (determined by its CRO structure) generalized "entropy production extremum (C_max)" (also an exploratory framework concept, philosophically referring to the capacity limit of any finite structure).

The Existence-Evolution Axis (EEA): As the historical trajectory recording the replacement of an RS's core CRO and the transformation of the RS's overall "existence paradigm."

Global Bidirectional Self-Organization (BSO): As the fundamental organizing principle for continuous interaction, synergistic operation, adaptive adjustment, and structural reconstruction among all levels and elements within an RS, and between the RS as a whole and its external environment ("Pure Nothingness," other RSs/AROs).

In summary, the "Relatedness System (RS)" concept is the basic unit and unified perspective in *Relatedness Theory* for understanding and analyzing complex structured "existence" and its dynamic evolution across various scales and domains in the cosmos. It not only profoundly embodies *Relatedness Theory's* "primacy of relations" ontology and CR-defined contextual structurology but is also the core carrier of its EEP-driven, EEA-recorded, BSO-organized dynamics and evolution theory. The proposal of RS enables *Relatedness Theory*, with an intrinsically consistent logic, to attempt to connect the entire generative and

evolutionary chain from the most fundamental "Pure Being" potentiality to the multifarious specific "units of existence" in our experiential world.

the "Relatedness System (RS)" concept in *Relatedness Theory* holds extremely profound revelatory significance for our deep understanding of the ubiquitous interconnectedness among all things in the cosmos, interaction as the fundamental mode of existence, and the indivisible unity of cosmic structure and process. It invites us to transcend traditional conceptions of the world as a collection of isolated "things" and instead to re-examine and understand ourselves and the mysteries of the cosmos we inhabit from a dynamic, hierarchical, "system" perspective centered on relations. This shift in perspective may not only provide new exploratory paths for many unresolved scientific conundrums (such as the origin of life, the nature of consciousness, the prediction of complex system behavior, etc.) but may also offer important philosophical guidance for how human society can construct a more harmonious and sustainable future based on a profound understanding of interdependence and co-evolution. The potential of the RS concept lies in its depiction of a cosmic tableau where all things are related, all things are processes, and all things co-evolve in contradiction and synergy—a "Relational Cosmos" in the true sense.

Chapter 7: Relatedness Level (RL)—Structural Differentiation and Operational Specialization within a "Relatedness System"

7.0 Introduction: From "System as a Whole" to "Internal Constitution"—Introducing the Concept of Relatedness Level

In Chapter 6, we established the "Relatedness System (RS)" as the basic unit in *Relatedness Theory* for understanding and describing macroscopic structured existence. Each RS is defined and organized by its unique, dominant "Central Commonality Reference (CRO)," manifesting as a dynamic, open relational whole. However, when we examine RSs of higher complexity in the real world—such as a sophisticated biological organism, a highly specialized social organization, or even human cognitive systems themselves—we clearly observe that they are not homogeneous, monolithic wholes, but rather exhibit astonishing internal structural differentiation and diversified operational modes.

So, how is this internal structural differentiation and operational diversity within a complex RS formed? Under the unified framework provided by its core CRO, how are these internal "subsystems," "functional modules," or "specialized operational domains" identified, demarcated, and how do they exhibit their unique organizational patterns? How does *Relatedness Theory*, with an intrinsically consistent logic, describe these internal constitutions that possess a certain relative independence yet serve (or contribute to) the system as a whole?

The core purpose of this chapter is precisely to thoroughly elucidate the concept of the "Relatedness Level (RL)"—the basic organizational unit in *Relatedness Theory* used to describe the manifestation of structural differentiation and operational specialization within an RS. We will explore how an RL is defined and originates from its specific "Specific Commonality Reference (SRO)," what its core characteristics and operational modes are, and the key role RL plays in the structural formation, diversity manifestation, and emergent holistic behavior of complex RSs. Understanding the Relatedness Level is a crucial step in further revealing how complexity self-organizes and operates hierarchically in the cosmic tableau of *Relatedness Theory*.

7.1Core Demarcation of a Relatedness Level (RL): A Specific Relational Domain Organized by an SRO within the CRO Framework

A "Relatedness Level (RL)" is not an arbitrary division or subjective segmentation of a "Relatedness System (RS)," but rather a structural unit with specific meaning and an emergent basis within the ontological framework of *Relatedness Theory*. I ts core demarcation must be understood through its relationship with a "Specific Commonality Reference (SRO)" and the "Central Commonality Reference (CRO)" of its encompassing RS.

7.1.1 Precise Definition of RL

In *Relatedness Theory*, a "Relatedness Level (RL)" is precisely defined as: within a "Relatedness System (RS)" defined by a core CRO, a "subdomain of existence" or a "specific operational layer of the relational network" that is defined and organized by one (or a group of closely related) "Specific Commonality Reference(s) (SRO)" and exhibits a relatively self-consistent operational mode.

This definition includes the following key points:

An RL is an internal constituent of an RS: The existence of an RL always has a broader RS (defined by a CRO) as its background and encompassing framework.

An RL is defined and organized by an SRO: Each RL is endowed with its uniqueness and organizational principle by its unique, dominant SRO.

An RL is a "subdomain of existence" or a "specific operational layer": It represents a relatively distinguishable part within an RS that possesses some specialization in structure or operation.

An RL exhibits a "relatively self-consistent operational mode": The "Dependency Paths (DPs)" and "Relative Entities (REs)" within an RL primarily follow the rules of its SRO for interaction and evolution, displaying internally relatively consistent and stable behavioral characteristics.

7.1.2 SRO as the "Commonality Core" and "Rule Embodiment" of an RL

Just as a CRO is the "soul" and "legislator" of its RS (this is a metaphor, emphasizing its core defining role), each "Relatedness Level

(RL)" is also defined and endowed with its essential characteristics by its unique, dominant "Specific Commonality Reference (SRO)."

An SRO embodies the core "commonality rules" of that RL: An SRO is the stable embodiment of the most fundamental "commonality standards" and "operational logic" within its RL. The specific commonality it solidifies (e.g., a particular information processing algorithm, a specific material transformation pathway, a certain structural symmetry or functional propensity) constitutes the fundamental basis for distinguishing that RL from other RLs within the RS.

An SRO determines the unique "operational mode" of the RL: The connection preferences and activation conditions of "Dependency Paths (DPs)" within an RL, the manifested forms and attribute ranges of "Relative Entities (REs)," and their interaction laws, are all primarily shaped by the "definitional power" of that RL's SRO. The characteristics of an SRO directly determine the operational features and behavioral manifestations of its RL.

An SRO is the fundamental reason an RL can become an identifiable, relatively independent unit: It is precisely due to the existence of an SRO and the unique commonality it represents that an RL can be (theoretically or observationally) identified from the broader background of its encompassing RS and understood as a unit with relatively independent operational logic.

7.1.3 The Relativity of RL and its Structural Dependence on CRO

The existence and characteristics of a "Relatedness Level (RL)" profoundly embody the principles of relativity and hierarchy in *Relatedness Theory*:

The existence and characteristics of an RL are always relative to its encompassing RS (defined by a CRO) and the SRO that defines it: The boundary of an RL, the validity of its internal rules, and the "meaning" of its operational mode cannot be discussed detached from the overall framework of its encompassing RS (defined by the CRO) and the specific stipulations of its own SRO. The same DPs network fragment, under different SRO or CRO contexts, might constitute entirely different RLs, or not constitute an identifiable RL at all.

Its operational results contribute to (or influence) the overall stability or specific operational modes of the RS: As an internal

constituent unit of an RS, an RL's own operational state and "output" (whether information, matter, energy, or some structural influence) will, as input or perturbation, contribute to or influence the overall stability, behavioral patterns, and evolutionary path of its encompassing RS. The operation of an RL is not isolated but is a component of the RS's overall dynamics. What is emphasized here is a mechanistic association and consequence, not a teleological notion that the RL operates "for the sake of" the RS as a whole.

And it is structurally constrained by the CRO's macroscopic rules: Although an RL possesses a certain operational autonomy under the definition of its SRO, it always remains within the more macroscopic rule and constraint framework provided by its encompassing RS's CRO. The "specific commonality" embodied by an SRO cannot fundamentally and irreconcilably conflict with the "common/core commonality" embodied by the CRO. The CRO's macroscopic rules set the boundary conditions and possibility space for the emergence and operation of all internal RLs.

Understanding this relativity of RL and its structural dependence on CRO is key to grasping how the complex hierarchical structure within an RS is formed and maintained.

7.2Emergence and Constitution of a Relatedness Level (RL): The Local "Defining Field" of an SRO and Specialized Dependency Paths and Patterns

A "Relatedness Level (RL)" is not a pre-existing "compartment" within a "Relatedness System (RS)" waiting to be filled, nor is it an externally designed "module" for some specific "function." On the contrary, the formation of an RL is a self-organizing process intrinsic to the RS, brought about and demarcated by the emergence of a more specific "Specific Commonality Reference (SRO)."

7.2.1 The Emergence of an SRO as a Prerequisite for RL Formation

Within the broad framework of a "Relatedness System (RS)" defined by a core CRO, due to possible local differences in "Pure Being" potentiality in different internal regions of the RS, preferential combinations of "relational propensities" of specific "Primordial Vectors (PVs)," or during the operation of the RS's overall "Global Bidirectional Self-Organization (BSO) mechanism," certain local "Dependency Path (DPs)" networks may spontaneously evolve and stabilize, forming a stable embodiment of "commonality rules" that are more concrete and specialized relative to the CRO of their encompassing RS—this is the emergence of a "Specific Commonality Reference (SRO)." This emergent process of an SRO may, mechanistically, share similarities with the "Commonality Self-Activation Mechanism (CSAM)" described in Chapter 3 (especially its "Entangled Stabilization" phase of relational lock-in and structural solidification), but it occurs within an RS already provided with initial order and constraints by a CRO. Therefore, its scale and sphere of influence are typically more localized, and the "commonality" it embodies is more specialized. The successful emergence and stable existence of a specific SRO is the logical and genetic prerequisite for its corresponding "Relatedness Level (RL)" to be formed and clearly demarcated. An SRO is the source of an RL's "identity core" and "organizational principle." Without the emergence of an SRO, the corresponding RL cannot come into being.

7.2.2 The SRO's "Local Defining Field" and the "Responsive Activation" of PVs

Once an SRO stabilizes within its encompassing RS, it, like its higher-level CRO, forms a "local defining field" or "specialized

commonality potential field" that is more concrete and specialized than that of the CRO, through its own stable structure and the specific "commonality rules" it represents, within its sphere of influence (this scope operationally defines the boundary of the RL). This SRO's "local defining field" possesses the following characteristics:

It embodies the core commonality standards of that SRO (e.g., a specific information processing logic, a particular material transformation pathway, a certain structural symmetry requirement).

It makes it easier for those PVs (which may originate from potentiality not yet fully organized within the RS, or from the RS's continuous interaction with the external "Pure Being" background via the "Pure Nothingness" boundary) whose "relational propensities" (encoded by the "potential commonality labels" carried by PVs) are compatible with or can resonate with that SRO's core commonality, to be "responsively activated" and transformed into specialized Dependency Paths (DPs) possessing specific properties conforming to that SRO's rules, when influenced by the eternal random fluctuations of the "Pure Being" background or by the activities of other DPs networks within the RS. This "responsive activation" is still non-teleological; it is based on the "degree of matching" or "affinity" at the commonality rule level between PVs and the SRO's "Defining Field," rather than the SRO's "active selection" or "intentional guidance."

7.2.3 Core Constitution of an RL

A "Relatedness Level (RL)" can thus be understood as a relatively distinguishable operational unit within an RS, constituted by the following core elements:

The dominant SRO: As the "commonality core" and "rule embodiment" of that RL, the SRO is fundamental to the RL's existence and the maintenance of its uniqueness.

A specialized DPs network organized and modulated by the SRO: A DPs network "responsively activated" and "responsively woven" under the influence of the SRO's "local defining field." The connection patterns, topological structure, transmission attributes (such as intensity, directionality, information type), and dynamic change rules of these DPs are profoundly imprinted with that SRO's core commonality, serving as the direct embodiment and material basis of that RL's specific mode of operation (e.g., specific information processing flows, particular material/energy transformation pathways).

Specialized REs manifested under the SRO's projection rules: Upon this specialized DPs network organized by the SRO, patterns with relative stability and identifiability emerge according to the (more specific than the CRO's) "projection rules" inherent in that SRO—these are specialized "Relative Entities (REs)." These REs are the "work units" or "state carriers" for specific information processing, material transformation, or the exhibition of particular behavioral patterns within that RL. For example, in an RL of an SRO defining a specific biochemical reaction pathway, the enzymes, substrates, products, etc., involved in the reaction can all be considered specialized REs.

These three core constituent elements of an RL—SRO (rule core), specialized DPs network (connection and process fabric), and specialized REs (patterns and carriers)—collectively define a subsystem with specific operational characteristics within an RS.

7.3Core Characteristics and Operational Modes of a Relatedness Level (RL)

Once one or more "Relatedness Levels (RLs)" emerge and operate stably within a "Relatedness System (RS)," they exhibit certain unique core characteristics and operational modes distinct from their constituent elements (DPs, REs) and their encompassing whole (RS). These characteristics and modes are crucial for understanding how a complex RS achieves its overall adaptability and diversity through internal structural differentiation.

7.3.1 Relative Operational Independence and Modular Structure

Because each RL is defined and organized by its own SRO, the SRO establishes relatively concrete, local "operational rules" for DPs connections, REs manifestation, and interactions within its RL. This enables an RL, to a certain extent (always within the overall rule and constraint framework of its encompassing RS's CRO), to exhibit relative operational independence. Its internal dynamic processes (e.g., information processing, material transformation) can proceed without significantly or immediately perturbing other parts of the RS (other RLs or the CRO level).

When an RS internally contains multiple such RLs with relative operational independence, this structure causes the RS to exhibit "modular" organizational characteristics. Different RLs are like "operational modules" that can be (at least conceptually) distinguished, each exhibiting concentrated processing, response, or expression regarding certain specific aspects of the RS's overall behavior or state. This modular organizational method is a common manifestation of a structural strategy evolved through self-organization in complex systems without central design, capable of effectively managing internal diversity and responding to external environmental changes.

7.3.2 Information Flow Transformation and Operational Specialization

The emergence and stability of each "Relatedness Level (RL)" are often associated with a specific information flow transformation process, a particular transformation pathway for matter/energy (if applicable), or the repeated execution of a certain specific behavioral

pattern sequence within its encompassing "Relatedness System (RS)." The "operational specialization" of an RL is precisely manifested here.

Its internal "Relative Entities (REs)" and "Dependency Path (DPs)" network, under the organization and modulation of the rules of the SRO defining that RL (these rules themselves being an embodiment of that SRO's core commonality), conduct these transformations of information/matter/energy or exhibit these specific behavioral pattern sequences in a specific, repeatable manner.

Examples:

In the complex RS of the human brain, different areas of the visual cortex (e.g., V1 processing edges and orientation, V4 processing color, MT processing motion) can be considered different visual information processing RLs, each possessing its specific neural circuit organizational principles (SROs) and performing specialized processing and transformation on input visual signals (DPs flows).

In a living cell RS, a mitochondrion, as an RL (defined by the SRO_Mitochondria of its unique membrane structure, enzyme system, and biochemical reaction rules), specifically executes the process of cellular respiration, converting chemical energy into ATP.

In a modern social organization RS, departments such as R&D, production, and marketing can each be considered RLs with specific operational processes and information processing characteristics (defined by SROs such as their respective departmental organizational structures, work norms, and professional knowledge systems).

7.3.3 Exhibition of Complex Behaviors and Hierarchical Organization

One of the key mechanisms by which a "Relatedness System (RS)" can exhibit complex holistic behavioral patterns far exceeding the simple sum of any of its individual constituent elements (whether PVs, DPs, or primary REs) lies in the combination of multiple different "Relatedness Levels (RLs)" within it, their complex interactions, and possible hierarchical nesting (i.e., some RLs may further differentiate into more detailed sub-RLs, forming a secondary SRO structure beneath an SRO).

Combination giving rise to new behaviors: Different RLs, even if their individual operational modes are relatively simple, may, when connected by specific DPs networks and engaging in synergistic action

(this synergy itself may also be guided by higher-order CR rules), enable their combined system to exhibit entirely new holistic behavioral patterns that cannot be directly predicted from the characteristics of individual RLs.

Hierarchical organization managing complexity: By internally "decomposing" and "allocating" an overall, complex "existential challenge" (e.g., an organism maintaining survival and reproduction in a variable environment, or a cognitive system understanding a complex problem) to a series of relatively specialized, modular RLs for processing, and through hierarchical control between these RLs (modulation of SROs by CRO) and synergistic interaction (horizontal connections between SROs), an RS can manage and respond to high levels of complexity in a distributed, parallel manner.

Pathways for the emergence of new complex behavioral patterns: An RS exhibiting new, more complex behavioral patterns as a whole may do so through:

Adjustments or evolution in the rules of its SRO within an existing RL (possibly changes on that SRO's own EEA).

Changes in the original DPs connection modes, strengths, or information transmission attributes between different RLs.

The emergence of entirely new SROs within the RS, thereby differentiating new RLs and establishing new interactive relationships with existing RLs. These processes are all driven and regulated by the RS's overall "Existence-Evolution Paradox (EEP)" and "Global Bidirectional Self-Organization (BSO) mechanism."

7.4Interaction Between Relatedness Levels (RLs): Hierarchical Operation of "Global Bidirectional Self-Organization (BSO)" within a "Relatedness System (RS)"

Although "Relatedness Levels (RLs)," under the definition and reference of their respective "Specific Commonality References (SROs)" (and regulated by the inherent "identifiability threshold" of said SROs), exhibit relative operational independence and specialization, they do not exist in isolation within their encompassing "Relatedness System (RS)." On the contrary, an RS's overall coordination, the manifestation of its complex behavioral patterns, and its capacity to respond and adapt to internal and external changes profoundly originate from the continuous, complex, multidirectional interactions between its different internal RLs, and between these RLs and the "Central Commonality Reference (CRO)" that defines the entire RS. This ubiquitous, trans-tier mutual influence, mutual determination, and co-evolution is precisely the concrete operational manifestation and hierarchical unfolding of *Relatedness Theory's* core organizational principle—the "Global Bidirectional Self-Organization (BSO) mechanism" (this being the "logical genesis" originating from the "bidirectional potential infinite extensibility" and "inherent necessary propensity" of "Primordial Vectors, PVs" and their interaction)—within an RS.

7.4.1 BSO as the Fundamental Organizing Principle for Internal Hierarchical Interactions within an RS

Within the framework of a "Relatedness System (RS)," the "Global Bidirectional Self-Organization (BSO) mechanism" ensures that information, influence, and constraint can be effectively transmitted and mutually determined via various direct or indirect "Dependency Path (DPs)" connections between the "Specific Commonality References (SROs)" defining different "Relatedness Levels (RLs)," and between these SROs/RLs and the core CRO governing the entire RS. RLs, within a common RS framework (defined and governed by its core CRO, which itself also sets the RS's overall "existence basis" and macroscopic "identifiability threshold"), interconnect, interact, interdepend, and collectively participate in the dynamic maintenance and evolutionary processes of the RS as a whole through the BSO mechanism. BSO is key to understanding how an RS operates as an integrated, dynamic whole

with intrinsic hierarchical order, rather than merely a simple functional aggregation of its internal RLs.

7.4.2 "Bottom-Up" Influence and Emergence: The Foundational and Shaping Role of RLs on Higher-Level CRs and the RS as a Whole

The collective behavior, operational states of "Relatedness Levels (RLs)" (defined by their SROs, internally containing specific DPs networks and "Relative Entity, REs" patterns), and the stability of their SROs, form the basis for the stable existence and exertion of holistic organizational function of their encompassing RS's higher-level references (e.g., the CRO governing them), and are also the fundamental source for the emergence of the RS's overall behavioral patterns.

1. Convergence of local RLs' operational states into an influence on the RS as a whole: The operational state of one or more lower-level RLs (e.g., the output of information processing flows defined by its SRO, products of material transformation, generation and consumption of energy, or stability changes or rule fine-tuning of its SRO itself due to local "Existence-Evolution Paradox, EEP_RL") will transmit its influence via connecting DPs networks. These influences may converge within the RS via the BSO mechanism, collectively shaping or altering the state, operational conditions, or EEP pressure faced by other parts of the RS (including other RLs or the core CRO).

2. Foundational and potentially challenging role of RLs on core CRO stability: The effectiveness of local rules embodied by RLs (via their SROs), the smoothness of synergistic operations achieved between them via BSO, and their respective capacities to manage their local EEP_RL, collectively "weave" and support the applicability and referential power of the overall "commonality rules" embodied by the RS's core CRO. Simultaneously, if multiple key RLs develop increasing incompatibility with the DPs network they are situated in (e.g., their SROs cannot effectively manage their RL's EEP_RL contradiction, or their "identifiability threshold" can no longer effectively screen key information), or if "structural tensions" arising from SRO rule conflicts between them converge and accumulate via the BSO mechanism, this may "bottom-up" challenge the overall applicability and stability of their encompassing RS's core CRO, even becoming one of the factors triggering a "paradigm shift" in that CRO (i.e., its "displacement" on the

RS's "Existence-Evolution Axis, EEA_RS," a fundamental reconstruction of its core rules and "identifiability threshold").

This "bottom-up" transmission of influence and emergence of characteristics is an indispensable part of the BSO mechanism, ensuring that the macroscopic holism of an RS is profoundly rooted in its specific operations and dynamic evolution at the microscopic and mesoscopic levels.

7.4.3 "Top-Down" Reference and Constraint: Modulation and Integration of Internal RLs (and their SROs) Operations by CRO via BSO

Concurrently, the global "commonality rules" defined by the "Relatedness System's (RS)" core "Central Commonality Reference (CRO)" (and its inherent, more macroscopic "identifiability threshold"), the relatively stable overall organizational principles and operational modes dynamically maintained by the RS as a whole under its core CRO's reference and the operation of the "Global Bidirectional Self-Organization (BSO) mechanism" (these modes being a transient equilibrium achieved under the drive of the "Existence-Evolution Paradox, EEP"), and the background influence of its broader "Encompassing/Inclusive Commonality Reference (ARO)," will also, via the BSO mechanism, modulate, constrain, and integrate downwards the emergence, operation, and evolution of all internal "Relatedness Levels (RLs)" (and the "Specific Commonality References, SROs" that define them).

1. CRO provides the referential framework and logical compatibility constraints for all internal RLs (and their SROs):

The CRO provides the most fundamental "existence basis," macroscopic referential framework, requirements for logical compatibility, and constraints on the possibility space for the emergence and operation of all internal RLs (and their SROs). The formation and stability of an SRO and its defined RL must, to some extent, be consistent with the core organizational principles and broader "identifiability threshold" range of its encompassing RS's CRO. The local rules defined by SROs (i.e., the "commonality rules" they embody) cannot fundamentally and irreconcilably conflict with the core commonality of the CRO (i.e., the more macroscopic "commonality rules" it embodies), otherwise that SRO would find it difficult to stably exist or its defined RL would not operate effectively.

2. CRO modulates local operational parameters and evolutionary possibilities of RLs via the BSO mechanism:

The overall state of the CRO (e.g., the stage it is in on its "Existence-Evolution Axis, EEA_RS," the stability of its "period of definitional power, T_CRO," or minor adjustments due to EEP drive), the influence of its broader encompassing ARO (e.g., changes in environmental resource abundance from the ARO, external selection pressures—where "selection pressure" here still refers to non-teleological dynamic screening conditions), or BSO adjustments made at the overall RS level to cope with its own EEP_RS, may all be transformed, via the BSO mechanism, into fine-tuning of the operational parameters of internal RLs (e.g., their SRO's "identifiability threshold," the connection strength and activation probability of their DPs networks, the "visibility" of their internal REs manifestations, and the priority of (generalized) resource allocation among them). These adjustments will influence, among multiple possible operational modes or evolutionary paths of RLs, which directions are dynamically easier to enter or which structural modes are more easily stabilized (this non-teleological "preferentiality" being a probabilistic result of BSO operating under specific constraints and conditions).

3. CRO coordinates inter-RL interaction modes and overall functional integration via the BSO mechanism:

The overall organizational principles and "commonality rules" embodied by the CRO also help to coordinate, via the BSO mechanism, the interactions between different RLs (and their SROs) within the RS. This ensures that they can coexist and co-evolve in a relatively orderly and synergistic manner (or at least in a way that effectively manages potential conflicts between them to avoid undermining the RS's overall C_max). In this way, the RS can operate as a "Relatedness System" with internal consistency and holistic functionality, exhibiting coherent overall behavioral patterns that are not merely simple aggregations of local behaviors.

7.4.4 "Horizontal" Connection, Synergistic Operation, and Mutual Construction/Innovation Between RLs

Within the same "Relatedness System (RS)," different "Relatedness Levels (RLs)" (defined by their respective SROs), in addition to interacting indirectly through hierarchical relations with the core CRO, may also possess direct "horizontal" connections and interactions

realized through "Dependency Path (DPs)" networks. This horizontal interaction is also an important component of the "Global Bidirectional Self-Organization (BSO) mechanism," crucial for enhancing the internal integration and flexibility of the RS, and for the emergence of more complex holistic functions.

1. Achieving information exchange, resource sharing, and state synergy through horizontal DPs: These horizontal DPs enable different RLs to directly exchange the information processed by their SROs, share (generalized) resources required for their operation (e.g., energy, intermediate products, or specific processing capabilities), or mutually transmit signals regarding each other's states, thereby achieving faster, more direct synergistic operation.

2. Promoting synergistic functions across RLs and the emergence of complex behavioral patterns: Through such horizontal DPs connections and synergy driven by BSO, multiple functionally relatively specialized RLs (each with its SRO) can collectively participate in and accomplish more complex behavioral patterns or information processing tasks that only the RS as a whole can exhibit. For example, in the human cognitive RS, the RL responsible for language comprehension (defined by its SRO_Language), the RL for visuospatial processing (defined by its SRO_Visuospatial), and the RL for logical reasoning (defined by its SRO_Logic) must have a large number of complex horizontal DPs connections and achieve efficient synergistic work via the BSO mechanism to support our complex problem-solving, creative thinking, and comprehensive understanding of the world.

3. Horizontal interaction between RLs may give rise to new SROs or the mutual construction and innovation of rules: Sustained, in-depth horizontal interaction between two or more originally relatively independent RLs (via their SROs) may even, through the BSO mechanism, give rise to new, temporary or persistent, "Specific Commonality References (SROs)" at their interactive interface or in their common sphere of action, capable of integrating parts of their functions or coordinating relations between them. Alternatively, it may lead to mutual borrowing, adaptation, and co-evolution of their respective SROs' "commonality rules." This horizontal interaction is an important pathway in the cosmos of *Relatedness Theory* for complex functional synergy, the evolution of structural diversity, and (at the cognitive level) cross-domain knowledge integration and innovation.

The "Global Bidirectional Self-Organization (BSO) mechanism," through these multiple interactive paths—"bottom-up" emergence and influence, "top-down" reference and constraint, and "horizontal" connection, synergistic operation, and mutual construction/innovation between RLs—ensures that the various "Relatedness Levels (RLs)" within a "Relatedness System (RS)" can both maintain their operational specialization and relative independence under their SRO reference, and yet, as an organic, integrated whole, collectively participate in the stable maintenance of the RS, its dynamic response to internal and external changes, and its overall evolution along its "Existence-Evolution Axis (EEA_RS)."

7.5Dynamic Evolution of a Relatedness Level (RL): An RL's Own "Existence-Evolution Axis (EEA_RL)" and its Relation to the Overall EEA of the RS

A "Relatedness Level (RL)," as a relatively independent operational unit within a "Relatedness System (RS)," is not itself statically immutable but also possesses its own dynamic evolutionary history. This evolution is likewise driven by *Relatedness Theory's* core dynamic principle—the "Existence-Evolution Paradox (EEP)"—and may exhibit characteristics of its own "Existence-Evolution Axis (EEA_RL)."

7.5.1 Relative Stability of an RL and its Own EEP

Each "Relatedness Level (RL)" defined by a "Specific Commonality Reference (SRO)," within the overall framework of its encompassing RS, also faces its own local "Existence-Evolution Paradox (EEP)" process.

The SRO's "period of definitional power (T_SRO)": Similar to a core CRO, the SRO defining an RL also has its own "period of definitional power (T_SRO)," i.e., the timescale for which that SRO can maintain the effectiveness of its rules and the stability of organizing its RL's internal DPs/REs.

Maintenance cost (h(T_SRO)) (conceptual introduction): Similarly, extending the philosophical principles of *Relatedness Theory's* exploratory formalization framework, it can be considered that maintaining an SRO's stability within T_SRO is also accompanied by a corresponding "maintenance cost (h(T_SRO))". This cost originates from the "organizational effort" required within that RL to manage its own complexity, resist local perturbations, maintain informational self-consistency, etc.

An RL's internal "evolutionary tension (v_RL)": An RL also possesses its local "evolutionary tension (v_RL)," which may originate from the incompleteness of its SRO rules, the spontaneous fluidity of the DPs/REs constituting that RL, influences from other RLs within the RS, or environmental changes directly perceived by that RL. The conflict between v_RL and T_SRO (and its cost), along with the upper limit (conceptually C_max,RL) of that RL's capacity (determined by its SRO structure) to bear its own "activity intensity," collectively constitutes the EEP at the RL level.

7.5.2 An RL's Own "Existence-Evolution Axis (EEA_RL)"

During a relatively long "plateau phase" when the core CRO of its encompassing "Relatedness System (RS)" remains relatively stable, certain "Relatedness Levels (RLs)" within it (defined by their respective SROs) may well undergo their own "Existence-Evolution Axis (EEA_RL)" evolution, which is relatively smaller in scale and more localized in impact.

Adjustment and reconstruction of SRO: When the v_RL-T_SRO contradiction within an RL accumulates to a certain degree, its dominant SRO may destabilize and undergo adjustment (rule fine-tuning, parameter changes) or even fundamental reconstruction (the old SRO disintegrates, and a new SRO' emerges in its place or in a new way, possibly involving local CSAM-like processes).

Changes in local structure and operational characteristics: This SRO-level transformation will directly lead to changes in that RL's internal DPs network topology, REs manifestation patterns, and overall operational characteristics. For example, in a biological cell RS during its lifecycle, the activity and regulatory rules of a certain metabolic pathway RL within it (defined by a specific enzyme system SRO) might undergo adaptive changes. In a cognitive system RS_Self during the process of learning a new skill, the structure and efficiency of a cognitive module RL related to that skill (defined by a specific information processing SRO) might also be reshaped.

Not subverting the RS's overall "existence basis": These adjustments and reconstructions occurring at the RL level, as long as their impact is confined within that RL or can be effectively buffered and integrated by the RS's BSO mechanism, usually do not subvert the entire RS's "existence basis" (i.e., the stability of its core CRO). However, they will continuously alter the RS's internal local structures, functional details, and the subtle manifestations of its overall behavior.

7.5.3 The Fundamental Impact of Core CRO Reconstruction on All Internal RLs

However, when the core "Central Commonality Reference (CRO)" of a "Relatedness System (RS)" undergoes fundamental reconstruction on its overall "Existence-Evolution Axis (EEA)" (i.e., a major "transition node" on the EEA, usually triggered by the intensification of EEP contradictions at the overall RS level), this

transformation will have profound, cascading, and often subversive impacts on all (or most) internal "Relatedness Levels (RLs)."

Change in the RS's overall framework: The reconstruction of the core CRO means that the "existence basis," core organizational principles, primary operational logic, and macroscopic rule system defining the entire RS have undergone fundamental changes.

Shaking of the "existence basis" of internal RLs: Since the existence and operation of all internal RLs (and their SROs) ultimately depend on and are constrained by the framework provided by their encompassing RS's CRO, when this framework itself undergoes drastic change, the "existence basis" of these RLs (i.e., their SROs) and their original operational rules may no longer be applicable or sustainable.

Cascading transformation of RLs: The result may be:

Disintegration of old RLs: Those old SROs and the RLs they define that are incompatible with the new CRO''s core commonality or cannot adapt to the new framework may rapidly destabilize and disintegrate, their constituent DPs networks and REs patterns collapsing.

Profound reshaping of existing RLs: Some existing RLs may need to fundamentally adjust and reconstruct their SROs under the new CRO''s rules to adapt to the new overall environment.

Emergence of new RLs: The new CRO' may give rise to entirely new, previously non-existent SROs and RLs to embody the commonality rules and organizational principles represented by the new CRO'.

Reorganization of inter-RL relations and hierarchical structure: The relative importance of different RLs, their DPs connection modes, information flow paths, and their hierarchical positions within the RS (e.g., which RLs now occupy more core or foundational positions) may all be thoroughly reshaped. For example, a revolutionary shift in a scientific paradigm (the CRO of a knowledge system RS) necessarily leads to fundamental changes in the research objects, core questions, theoretical tools (SROs), and evaluation standards of all subfields (RLs) within that discipline. Similarly, a fundamental transformation of a social formation (the CRO of a social RS) will also thoroughly reshape the structure and operational modes of its internal economic, political, cultural, etc., subsystems (RLs).

This cascading effect from the transformation of the core CRO to the underlying RLs profoundly embodies the complex interaction and co-

evolution between the holism and locality of hierarchical systems, realized via the BSO mechanism, in *Relatedness Theory*.

7.6Chapter Summary: Relatedness Level—The Structural Unit for Internal Order Differentiation and Diversified Operation in Complex Systems

This chapter has thoroughly explored the "Relatedness Level (RL)," a core concept in *Relatedness Theory* used to describe the internal structural differentiation and operational specialization within a "Relatedness System (RS)." As a subdomain of existence or a specific operational layer within an RS, defined and organized by its specific "Specific Commonality Reference (SRO)," and exhibiting a relatively autonomous operational mode and unique manifestation characteristics, the understanding of RL is crucial for grasping the internal constitution and operational mechanisms of complex systems.

We elucidated the emergence and constitution of an RL: it presupposes the emergence of a corresponding SRO and is formed under the influence of the SRO's "local defining field" through the "responsive activation" of "Primordial Vectors (PVs)" and the "responsive weaving" of a specialized "Dependency Path (DPs)" network. Its core constituents include the dominant SRO, the specialized DPs network organized by the SRO, and the specialized REs manifested under the SRO's projection rules.

This chapter detailed the core characteristics and operational modes of an RL. An RL exhibits relative operational independence and a modular structure within its encompassing CRO's framework, enabling complex RSs to present modular organizational features. Each RL is often associated with a specific information flow transformation process, a particular material/energy transformation pathway, or the repeated execution of a specific behavioral pattern sequence within its encompassing RS, embodying high operational specialization. It is precisely through the combination, interaction, and hierarchical nesting of multiple different RLs within it that an RS can exhibit complex holistic behavioral patterns far exceeding the simple sum of its individual constituent elements.

We also explored the interactions between RLs, emphasizing that this is a manifestation of the "Global Bidirectional Self-Organization (BSO) mechanism" operating within an RS, including "bottom-up" influences and emergence, "top-down" modulation and constraint, and "horizontal connection and synergistic operation" between RLs.

Finally, we examined the dynamic evolution of RLs. Each RL itself may also experience its local "Existence-Evolution Paradox (EEP)" process and

exhibit characteristics of its own "Existence-Evolution Axis (EEA_RL)," undergoing relatively smaller-scale adjustments and reconstructions during the stable period of its encompassing RS's core CRO. However, when an RS's core CRO undergoes fundamental reconstruction on its overall EEA, it will have profound, cascading transformative effects on the "existence basis" and operational rules of all internal RLs.

In summary, the "Relatedness Level (RL)" is the key component by which *Relatedness Theory* explains how a complex "Relatedness System (RS)" achieves its diversified operations and holistic complex behaviors through internal structural differentiation. It profoundly embodies the hierarchical, modular, and dynamically evolving characteristics of existence. The proposal of the RL concept provides a unified, intrinsically logically consistent hierarchical perspective for us to understand and analyze the internal structural organization, information processing methods, and diversified operational mechanisms of various complex systems—from biological organisms to social organizations, from cognitive structures to technological systems—and lays the theoretical foundation for further exploring how these systems achieve their unique evolutionary paths driven by the "Existence-Evolution Paradox."

Chapter 8: Relative Entity (RE)—A Phenomenal Pattern, Projected by an SRO on the Basis of a CRO-Screened Dependency Path Network, All of Whose Specifications are Relative

8.0 Introduction: From Unidentifiable Potentiality to Experiential Phenomena—The Emergent Path of "Relative Entities" in Relatedness Theory

8.0.1 Review and Connection

In the theoretical construction journey of *Relatedness Theory*, we have already departed from the sole ontological cornerstone, "Pure Being," and explored how "Primordial Vectors (PVs)," as potentiality units carrying "relational propensities," spontaneously give rise to the first stable structural node—the "Commonality Reference (CR)"—through the "Commonality Self-Activation Mechanism (CSAM)." We further elucidated the hierarchical nature of CRs (with the "Central Commonality Reference, CRO" at the core, internally differentiable into "Specific Commonality References, SROs" defining "Relatedness Levels, RLs"), and how, under the influence of a CR's "Defining Field," the "Dependency Path (DPs)" network is "responsively activated" and "responsively woven," thereby constituting the foundational fabric of "Relational Reality."

However, a crucial issue lies in this: *Relatedness Theory* profoundly points out that PVs themselves, which form the basis of "Relational Reality," and the microscopic DPs networks formed by their activation, are typically not directly identifiable or perceivable by any finite "Relatedness System (RS)" (including ourselves as cognitive subjects). They are the logical prerequisites and ontological primitives of theoretical deduction, but not the direct objects of our experiential world.

8.0.2 Core Question

So, how are the "things," "objects," or "phenomena" that we perceive in daily experience—those possessing relatively independent forms, specific attributes, and identifiable behaviors, such as an electron, a tree, a thought, a social event—produced on the basis of this DPs network, which is not directly identifiable yet has been initially "screened" and "shaped" by the core CRO of its encompassing RS? What

is their precise ontological status and hierarchical mode of definition in *Relatedness Theory*? How does this experiential phenomenal world "emerge" from the invisible underlying Relational Reality?

8.0.3 *Relatedness Theory's* Fundamental Sublation of "Entity" and the Proposal of "Relative Entity (RE)"

Relatedness Theory's answer to these questions begins with a fundamental sublation of the traditional conception of "entity":

Relatedness Theory fundamentally denies the existence of any form of independently existing "absolute entities" or an "ultimate substratum." The cosmos is not constituted by pre-existing "things-in-themselves" (Dinge an sich) akin to "atoms" or "cornerstones," which possess inherent attributes independent of any relation or reference.

To describe and explain those "phenomenal patterns" in our experiential world that are identifiable, possess relatively stable forms, and exhibit specific behavioral characteristics, *Relatedness Theory* introduces the core concept of "Relative Entity (RE)."

It must be strictly clarified from the outset the essential difference between REs and traditional entities: An RE is not a "thing-in-itself"; it does not possess any intrinsic essence independent of its generative mechanism and referential framework. Nor is an RE directly equivalent to the underlying DPs network (i.e., "relational emergence") that constitutes "Relational Reality" itself. Rather, an RE is a specific dynamic pattern of this DPs network—already "screened" and "pre-processed" by the rules of its encompassing RS's core CRO—which, under the action of the "projection rules" inherent in the more specific SRO of its encompassing RL, is stably "projected" or "manifested" at the phenomenal level. Therefore, the existence, form, attributes, and all specifications of an RE possess a fundamental, profound relativity.

8.0.4 The understanding of Relative Entities (REs) must strictly follow *Relatedness Theory's* hierarchical ontology and its essence of "hierarchical screening and projection." This chapter will follow this path to delve into the precise hierarchical positioning of REs (i.e., how a CRO "screens" from PV potentiality the DPs network constituting its RS's internal basis, and how an SRO then "projects" the REs within its RL from this DPs network), the mechanism by which REs emerge as specific DPs network patterns under their SRO's "projection rules," their thoroughgoing relationality of "no intrinsic attributes" (i.e., how all their

specifications originate entirely from the relational characteristics of their "precursors"—the CRO-screened DPs network patterns—and are relatively manifested in the hierarchical referential "projection" of SRO/CRO), their dynamic lifecycle, and how this concept provides a new philosophical perspective for understanding the constitution and operation of the phenomenal world and its profound relativity.

8.1 Core Demarcation of a Relative Entity (RE): A Stable Phenomenal Pattern, Projected by an SRO on the Basis of a CRO-Screened DPs Network, Whose Existence and Specifications are Entirely Relative

The "Relative Entity (RE)," as the core term in *Relatedness Theory* for denoting and describing identifiable "phenomenal patterns" in our experiential world, its definition and understanding must be strictly situated within the precise, CR-centric hierarchical ontological framework of *Relatedness Theory*. The existence and all specifications of an RE originate from a "screening-projection" process that is progressively concretized and referentially layered.

8.1.1 Precise Hierarchical Positioning of RE and the "Hierarchical Screening-Projection" Chain: The Emergence of Phenomena Must Undergo Progressive Specification from Universal Potentiality to Specific Patterns

In the cosmic structural tableau of *Relatedness Theory*, the emergence and existence of a "Relative Entity (RE)" strictly follow the ensuing hierarchical screening and projection chain:

1. Starting Point: "Pure Being" and "Primordial Vectors (PVs)": The sole ontological basis of the cosmos is "Pure Being," which contains infinite "Primordial Vector (PVs)" potentiality, each PV carrying a latent "relational propensity" (encoded as a "potential commonality label").

2. First-Order "Screening" and Formation of DPs Network (Dominated by CRO): When a "Central Commonality Reference (CRO)" emerges and stabilizes through the operation of the "Commonality Self-Activation Mechanism (CSAM)" or subsequent "Global Bidirectional Self-Organization (BSO) mechanism," this CRO defines a "Relatedness System (RS)" possessing holistic identity and operational logic. The CRO's core "commonality rules" act like a macroscopic "filter" or "Defining Field," "screening" from the infinite PV potentiality of "Pure Being" those PVs compatible with its RS's core commonality, and guiding these "screened" PVs to be "responsively activated" and "responsively woven" into the specific "Dependency Path (DPs)" network that constitutes the basis of "Relational Reality" within that RS. Therefore, the DPs network existing within an RS, its type, connection patterns, and basic dynamic propensities, are already deeply imprinted by its core CRO.

3. Second-Order "Projection" and Manifestation of RE (Dominated by SRO, Governed by CRO): Within an RS founded and governed by a CRO, one or more "Specific Commonality References (SROs)" may further emerge, each SRO defining and organizing a relatively specialized "Relatedness Level (RL)" within its RS. And a "Relative Entity (RE)" manifests precisely as a stable pattern of the DPs network organized by that RL, a network already initially shaped by its RS's CRO, within such a specific "Relatedness Level (RL)." The SRO's "commonality rules" (i.e., its RL's "projection rules") act upon the DPs network within its RL's scope, "projecting" or "manifesting" those specific patterns from the dynamic configurations and activity modes of this DPs network (the direct "pre-state" or "projected archetype" of the RE) that can achieve self-consistency with the SRO's core commonality, form stable configurations, and exhibit identifiable characteristics, as REs perceivable at the phenomenal level of that RL.

Further deepening the "dual reference" of RE: Based on this hierarchical screening and projection chain, the existence and definition of an RE are necessarily subject to the reference and constraint of at least two levels of CRs simultaneously:

It directly depends on the "projection rules" of the "Specific Commonality Reference (SRO)" of its encompassing "Relatedness Level (RL)," which determines the RE's specific form, its mode of operation within its RL, and its "local attributes" and meaning within that RL context.

Simultaneously, this SRO and the RL it defines exist within a "Relatedness System (RS)" defined by a higher-order "Central Commonality Reference (CRO)." The CRO of that RS, through its initial "screening" of PVs and its "shaping" of the overall DPs network within the RS, provides a more fundamental "existence basis," macroscopic constraints, and an overall coordinating framework for the operation of all internal SROs and the manifestation of REs. The existence of an RE must be compatible with the core commonality and stability requirements of the entire RS.

Multiple, Even Profoundly Manifold, Referencing under the Nested Relationship of ARO, CRO, and SRO: The "dual reference" described above is merely a basic characterization of an RE's referential dependence. In the more complete hierarchical cosmic tableau of *Relatedness Theory*, the "existence" and "specification" of an RE may

actually be subject to extremely complex, multiple references from far more than two levels.

Encompassing influence of ARO: As we explored in depth in Chapter 4 (section 4.3.3), any "Relatedness System (RS)" defined by a CRO (and all its internal SROs and REs) may be embedded within one or more broader macroscopic contexts defined by "Encompassing/Inclusive Commonality References (AROs)." These AROs (which themselves may be higher-order CROs), through their more universal "commonality rules" and "Defining Fields," provide a more fundamental "operational background," broader "constraint conditions," a more basic "resource environment," and a more far-reaching "meaning framework" for the focal RS (and its internal REs).

For example, a specific protein molecule (an RE, projected by SRO_ProteinFunction in its encompassing biochemical reaction RL) within a biological cell (an RS, defined by its CRO_Cell), its "existence" (whether it can be stably synthesized, maintain active conformation) and "attributes" (such as catalytic efficiency, affinity for other molecules), are not only directly referenced by its SRO_ProteinFunction and CRO_Cell, but are also indirectly, yet fundamentally, shaped and constrained by its encompassing biological organism (a higher-order RS, defined by CRO_Organism), the ecosystem in which that organism is situated (an ARO_Ecosphere, defined by its CRO_Ecosystem), and even the entire physical cosmos (an ultimate ARO_PhysicalCosmos, defined by its CRO_Cosmos) which provides physico-chemical laws, energy supply conditions, and environmental selection pressures.

Potential re-stratification within an SRO: Within a "Relatedness Level (RL)" defined by an SRO, if its complexity is sufficiently high, it may further differentiate into more subordinate, more specific SROs, forming local hierarchical nesting. This means that the "projection rules" and "referential framework" for an ultimately manifested RE might be the result of the joint superposition and screening of "commonality rules" from multiple levels of CRs, progressively refined downwards from a macroscopic ARO to its directly encompassing SRO.

Complex reality of "profoundly manifold referencing": Therefore, a seemingly simple "Relative Entity (RE)," for it to stably manifest with a specific form and specific attributes at the phenomenal level, may actually be the ultimate "projection result" of an extremely subtle, transient, highly context-dependent dynamic equilibrium achieved after

innumerable "Commonality References" across multiple scales and abstract levels in the cosmos, through complex "Global Bidirectional Self-Organization (BSO)" mechanisms and hierarchically nested "screening-projection" chains, have jointly acted, mutually negotiated, and even mutually conflicted and compromised. Each RE is a complex "light spot" cast by the entire cosmic relational network onto a specific "focus" (selected by the observer or analytical framework's SRO/CRO), condensing information from multiple references. This view of "multiple, even profoundly manifold, referencing" further thoroughly dissolves the possibility of any RE possessing a singular, fixed "essence," and profoundly anchors its "existence" and "specification" in the infinitely hierarchical, universally related, dynamically evolving Relational Reality tableau of *Relatedness Theory*. It also provides the ontological basis for understanding the complex coupling and trans-level influences between phenomena at different levels.

8.1.2 Precise Definition of RE – As a Phenomenal Pattern of "Hierarchical Projection"

Based on the aforementioned hierarchical screening and projection chain and dual reference characteristics, a "Relative Entity (RE)" can be precisely defined as: a specific relational pattern (pattern of relations) that, within a "Relatedness System (RS)" governed by a core CRO (the "Dependency Path (DPs)" network of which RS is itself the result of its core CRO "screening" and organizing its "Primordial Vector (PVs)" potentiality), within a specific "Relatedness Level (RL)" (which RL is defined and organized by its own SRO, embodying more concrete local commonality rules), as a dynamic configuration and activity mode of the DPs network (this being the direct "pre-state" or "projected archetype" of the RE, a concrete manifestation of "relational emergence" after CRO screening), is stably "projected or manifested" according to the "projection rules" inherent in that SRO (and simultaneously structurally constrained by the macroscopic rules and overall stability of its encompassing RS's CRO), possessing relative stability and identifiability at the phenomenal level.

8.1.3 Ontological Status of RE: As the Direct Carrier of Phenomena, its "Existence" is the Stable Manifestation of a Specific "Hierarchical Projection Pattern" within its Ultimate Referential Framework (SRO under CRO's Governance), by no means an Independently Existing Thing, with all its Specifications

Originating from its "Precursor" (the CRO-Screened DPs Network Pattern) and the SRO/CRO's "Projection" Process

In the ontological tableau of *Relatedness Theory*, the status of a "Relative Entity (RE)" is unique and crucial:

REs are the direct constituent units and information carriers of the phenomenal world: The "real world" or "phenomenal world" that we can perceive, experience, describe, and operate upon is, in the view of *Relatedness Theory*, precisely constituted by innumerable such REs (as stable projection patterns) and their (also projected) interactions. REs are the concrete "faces" or "contents" ultimately presented to us by "Relational Reality" through hierarchical screening and projection, at specific levels and referential frameworks.

The "existence" of an RE *is* the relatively stable manifestation of a specific "hierarchical projection pattern": The "existence" or "reality" of an RE does not lie in its possessing a "material substrate" or "intrinsic essence" independent of relations and references. Its "existence" consists entirely in its being, as a specific DPs network pattern (its "precursor") initially shaped by a CRO, relatively stably and identifiably "manifested" as a specific "phenomenal pattern" under the joint action of a specific SRO (as the embodiment of "projection rules") and a higher-order CRO (as the ultimate referential framework and constrainer). Once the conditions for this "projection" (such as the stability or projection rules of the SRO/CRO) change, or the stability of its "precursor" (DPs network dynamics) disintegrates, this RE pattern may no longer manifest or may disintegrate.

An RE is by no means an independently existing thing; all its specifications originate from its "precursor" and the SRO/CRO's "projection" process: This is the ultimate emphasis on the ontological status of REs. An RE is thoroughly derivative, relative, and context-dependent. It possesses no attributes or specifications prior to its "projection" process. All its characteristics—form, behavior, relations with other REs, and even its "existence" itself—are properties of its "precursor" (the CRO-screened DPs network pattern), endowed and manifested within the "projection rules" and referential framework of a specific SRO/CRO. An RE is the "phenomenalization" of "relation" under hierarchical reference, not the "relationalization" of "entity."

8.2 Elucidation of the "Projection" Mechanism: From the CRO-Initially-Shaped DPs Network (Direct "Precursor" of RE) to the Hierarchical Reference and Dynamic Process of RE Phenomenal Presentation Projected by SRO

The "Relative Entity (RE)," as the core concept in *Relatedness Theory* for describing "things" or "phenomenal patterns" in our experiential world, its emergence from the more fundamental level of "Relational Reality" is not a mysterious, inexplicable leap. Instead, it is a "projection" process that follows specific mechanisms and profoundly embodies hierarchical referential dependence. The core of this mechanism lies in: first, the "Central Commonality Reference (CRO)" of a "Relatedness System (RS)" conducts an initial, macroscopic "shaping" and "screening" of its internal "Dependency Path (DPs)" network (via the passive yet structural guidance of its "Defining Field" and "identifiability threshold"). Then, a "Specific Commonality Reference (SRO)" of a particular "Relatedness Level (RL)" within that RS, based on its own "commonality rules" (i.e., its "projection rules") and a more specific "identifiability threshold," "projects" or "manifests" specific dynamic patterns (these being the direct "precursors" of REs) from this CRO-initially-shaped DPs network as REs identifiable at the phenomenal level. The entire process is accomplished under the continuous drive of the "Global Bidirectional Self-Organization (BSO) mechanism."

8.2.1 The Direct "Precursor" of RE: Specific Dynamic Patterns of the DPs Network Initially Shaped by CRO

At the ontological level of *Relatedness Theory*, the direct "source" or "precursor" from which any "Relative Entity (RE)" can be "projected" does not originate from unspecified, diffuse "Primordial Vector (PVs)" potentiality within the "Pure Being" background, nor from a completely disordered, random DPs network.

On the contrary, the direct "precursor" of an RE is a specific dynamic configuration or activity pattern of the "Dependency Path (DPs)" network that already exists within a particular "Relatedness System (RS)" and has already undergone a first-order macroscopic "shaping" and "screening" by the "commonality rules" of that RS's core "Central Commonality Reference (CRO)."

1. Initial "shaping" by CRO and "pre-processing" of DPs network: The CRO, as the "existence basis" and organizational core of its RS, through its macroscopic "Defining Field" and inherent "identifiability threshold" (which are themselves manifestations of its stable relational structural pattern), has already "screened" from the infinite PV potentiality of "Pure Being" those PVs compatible with its RS's core commonality. It has also guided these "screened" PVs to be "responsively activated" and "responsively woven" into the specific DPs network that possesses particular holistic characteristics and constitutes the basis of "Relational Reality" within that RS. This process is not the CRO's active "selection," but rather its passive yet structural role as a reference, making certain DPs connection patterns more likely to form and stabilize above that RS's "identifiability threshold." Therefore, the possible connection modes, dynamic propensities, and information transmission characteristics of the DPs network existing within an RS have, to some extent, already been "pre-processed" or "constrained" by the CRO's macroscopic rules.

2. Specificity of RE "precursor" and its role as the starting point for SRO "projection": Thus, when an SRO is about to "project" REs from within the "Relatedness Level (RL)" it defines, the object it acts upon—the direct "precursor" of the RE—is a specific dynamic configuration or activity pattern within this DPs network that has already undergone "pre-processing" at the CRO level and is relatively more ordered and possesses specific RS-holistic characteristics. This provides the basis and source of information for the SRO to perform a more refined, more specific "projection."

8.2.2 An SRO's "Projection Rules" and its "Identifiability Threshold" as the Core Mechanism for "Pattern Selection and Manifestation" (Governed by CRO and Driven by BSO)

Within an RS defined by a CRO, a "Specific Commonality Reference (SRO)" of a particular "Relatedness Level (RL)" (which itself is also macroscopically constrained by the CRO and emerges and operates under the drive of BSO), through its inherent, more concrete and specialized "commonality rules" (i.e., its "projection rules") and corresponding "identifiability threshold," plays the core mechanistic role of "projecting" or "manifesting" the RE's "precursor" (i.e., specific dynamic patterns in the CRO-initially-shaped DPs network) as phenomenal-level REs.

1. An SRO's "commonality rules" *are* its RL's "projection rules": An SRO's "commonality rules" are not an active, conscious "set of instructions," but rather the passive yet effective "shaping" and "presentational" effect on its RL's internal DPs network dynamics, necessarily brought about by its own stable relational structural pattern and the core "commonality" it solidifies (e.g., a specific information processing logic, a particular material transformation pathway rule, a certain geometric or topological symmetry requirement).

2. An SRO's "projection rules" and "identifiability threshold" act like a "manifestation condition setter" and "visibility regulator" for specific DPs network patterns: The SRO's "Defining Field," its inherent "projection rules," and its more specific "identifiability threshold," when acting upon the ever-fluxing, CRO-initially-shaped DPs network dynamics (the RE's "precursor") within its RL, produce an effect akin to a "manifestation condition setter" and "visibility regulator":

It does not actively "create" REs. Rather, its "commonality rules" and "identifiability threshold" collectively set a standard. Only when certain dynamic patterns of the RE "precursor" happen to satisfy these standards (i.e., are highly "compatible" with or "match" or can "resonate" with the SRO's commonality rules, and their "manifestation intensity" or "pattern clarity" can reach or exceed that SRO's "identifiability threshold") are these patterns more easily and stably "manifested" at the phenomenal level of the RL defined by that SRO.

The SRO's rules and its "identifiability threshold" are like a "developing system" with specific parameters; it can only clearly "develop" (manifest as an RE) those parts of the latent image (specific patterns in the RE's "precursor") that conform to its "developing conditions."

8.2.3 Key Stages of the "Projection" Process: "Stabilizing Selection" and "Identifiable Presentation" of "CRO-Shaped DPs Network Patterns" Based on SRO Rules and "Identifiability Threshold," Driven by BSO

For a specific DPs network pattern initially shaped by a CRO (the "precursor" of an RE) to be successfully "projected" by the SRO of its encompassing RL as an identifiable "Relative Entity (RE)" at the phenomenal level, primarily depends on the following two non-teleological stages, which are closely related to SRO rules and

"identifiability threshold," under the continuous drive of the "Global Bidirectional Self-Organization (BSO) mechanism":

1. Relative Stability of the Pattern: The SRO's "commonality rules" (i.e., its "projection rules"), through the aforementioned "manifestation condition setting" effect, make it easier for those specific dynamics within its "precursor" (the CRO-shaped DPs network dynamics) that are self-consistent with the SRO's rules and can form stable configurations (relative to that SRO) or sustained operational modes, to be "solidified" within that RL and maintain continuity for a period. Those "precursor" patterns that are inconsistent with the SRO's intrinsic logic, or cannot form stable self-consistent structures within its "Defining Field," or whose "manifestation intensity" is insufficient to reach its "identifiability threshold," are difficult to be "projected" as persistent REs; they may manifest as fleeting fluctuations or belong to the "background noise" at the phenomenal level (i.e., parts not "illuminated" and "stabilized" by that SRO).

2. Identifiable Presentation of the Pattern: An SRO not only provides stability conditions for REs within its RL but also, through its defined "commonality standards," referential background, and inherent "identifiability threshold," enables these stably "projected" patterns to be "identified" and "distinguished" at the phenomenal level. For a DPs network pattern to become an RE, it must, within this referential background defined by the SRO, exhibit sufficient distinguishability—that is, it can be "identified" (theoretically or by a cognitive subject) as a relatively cohesive specific pattern distinct from its "environment" (other DPs activities or more diffuse background within the RL). The SRO's "projection rules" and its "identifiability threshold" can be understood as a non-conscious "pattern matching and screening mechanism." It causes those "precursor" patterns that have significant "resonance" or "correspondence" structurally or dynamically with the SRO's core commonality (or its derived rules), and whose "manifestation intensity" can "pass the threshold," to have their "signals amplified" or their "outlines highlighted" at the phenomenal level, thereby becoming REs that can be (theoretically or cognitively) grasped and denoted.

8.2.4 RE as a Phenomenon of its "CRO-Shaped DPs Network Precursor" Under Specific SRO "Projection," Ultimately Acquiring Holistic Meaning in CRO Macroscopic Reference

Therefore, a "Relative Entity (RE)" is not simply equivalent to the linear sum or average effect of the underlying "Dependency Paths (DPs)" that constitute it, nor is it a direct replication of its "precursor" (the CRO-shaped DPs network pattern). It is a holistic pattern presented at the phenomenal level, possessing (relative to that SRO/RL and its encompassing CRO/RS) new emergent characteristics (e.g., relative structural stability, specific behavioral traits, identifiable (though CR-dependent) boundaries, and a propensity to engage in specific interaction modes with other REs (which are also projections)), resulting from its "precursor" (i.e., the DPs network dynamics already initially formed and screened within the CRO's rule framework) being acted upon by the "projection rules" and corresponding "identifiability threshold" inherent in a specific, more local "Commonality Reference (CR)" (i.e., the SRO defining its RL).

This "projection" process is the key mechanism in the cosmos of *Relatedness Theory* for transitioning from the more fundamental, usually not directly perceivable, "Relational Reality" dynamic level (DPs network) to the "phenomenal world" (constituted by REs) that we can experience and describe. An RE is the product of this mechanism, the "concrete face" ultimately presented to us by "relation" under a hierarchical referential framework (from CRO to SRO), through a complex, BSO-driven, non-teleological self-organizing process. The ultimate "meaning" of an RE, its "role" and "value" (if applicable) within the entire RS, require further integration and coordination through BSO within the more macroscopic referential framework of its encompassing RS's core CRO to be fully understood and evaluated.

8.3 Thorough Implementation of the "No Intrinsic Attributes" Principle: The Hierarchical Relational Origin of All RE Specifications and their Manifestation as "Projection" and "Relativity"

One of the most central and subversive assertions of *Relatedness Theory* regarding "Relative Entities (REs)" is the complete negation of REs possessing any form of "intrinsic properties." This principle is a direct logical inference from the "primacy of relations" ontology at the phenomenal level and is also key to understanding how all specifications of REs arise and their profound relativity. The "no intrinsic attributes" of an RE does not mean it "is nothing," but rather emphasizes that "what it is" and "what characteristics it possesses" are entirely determined by the relational network from which it arises, the mechanism by which it is "projected," and the hierarchical referential framework in which it is situated.

8.3.1 Fundamental Negation of "Intrinsic Attributes" and the Establishment of "Attributes as Phenomenal Manifestations of their 'Precursor's' Relational Characteristics Under Hierarchical Referential 'Projection'"

Relatedness Theory asserts that a "Relative Entity (RE)" does not possess any inherent properties independent of its relational network and the context of its encompassing hierarchical "Commonality References (CRs)" (including the "Specific Commonality Reference, SRO" defining its "Relatedness Level, RL," and the "Central Commonality Reference, CRO" governing its "Relatedness System, RS").

1. All describable "attributes" of an RE are not "intrinsically inherent" to it: Whether they are physical attributes (such as mass, charge, position, momentum, energy, spin, etc.), chemical attributes (such as reactivity, bonding characteristics, acidity/alkalinity, etc.), biological attributes (such as specific functional phenotypes, metabolic rates, genetic traits, etc.), cognitive attributes (such as the intension and extension of concepts, the strength and content of beliefs, details of memory, etc.), or social attributes (such as social roles, identity status, power relations, etc.)—all these, which we typically consider as "attributes" "possessed" by "things," are, in the view of *Relatedness Theory*, not the RE's "own" possessions, nor are they properties "internally carried" by it that exist prior to relations and references.

2. An RE's "attributes" are phenomenal manifestations of its "precursor's" relational characteristics under hierarchical CR "projection": On the contrary, the deeper essence of these so-called "attributes" is: certain relational characteristics or dynamic properties possessed by the RE's direct "precursor" (i.e., the specific dynamic configuration or activity pattern of the "Dependency Path (DPs)" network already initially "shaped" and "screened" under the "commonality rules" and "identifiability threshold" of its encompassing RS's core CRO), are, under the joint action of the "projection rules" and corresponding "identifiability threshold" of the "Specific Commonality Reference (SRO)" defining that RE's encompassing "Relatedness Level (RL)" (and all this under the constraint and governance of a higher-order CRO's macroscopic referential framework), presented at the phenomenal level as concrete, observable or measurable appearances.

3. An RE's "attributes" are thoroughly relational, derivative, and the result of "projection": They are the "phenomenal attire" of "relation," the "visible characteristics" of a DPs network under a specific hierarchical CR "lens," rather than "intrinsic labels" of an "entity." All its specifications originate from its "precursor" and the hierarchical "projection" process of SRO/CRO.

8.3.2 Hierarchical Relational Dimensions of the Emergence of RE "Projected Attributes"

The specific "projected attributes" exhibited by a "Relative Entity (RE)," their concrete specifications, can be understood from the following interconnected dimensions, which profoundly embody *Relatedness Theory's* hierarchical reference and the operation of the "Global Bidirectional Self-Organization (BSO) mechanism":

1. Direct reflection, under SRO "projection rules," of the intrinsic structure and dynamic characteristics originating from its "precursor":

The "precursor" of an RE—the specific stable pattern within the DPs network initially shaped by a CRO—its own relational topological structure, connection strengths, information flow patterns, and dynamic characteristics following CRO macroscopic rules, are the most initial and fundamental "source of content" for the RE to exhibit specific attributes.

However, these "precursor" characteristics are not directly equivalent to the RE's attributes. They must undergo "reprocessing" or "presentation from a specific perspective" by the "projection rules" of the SRO of its encompassing RL to manifest as observable attributes of

the RE at the phenomenal level. The SRO's "projection rules" determine which relational characteristics of the "precursor" can be "projected" and how they are "projected" to achieve "visibility."

2. Presentation, under SRO/CRO "projection rules," as interactions between REs and their attributed manifestations, originating from interactions between its "precursor" and other "precursors" via more fundamental DPs:

Many important attributes of an RE only manifest and are defined when it interacts with other REs (which are also "projections" of their respective "precursors" within the SRO/CRO framework).

Profoundly understood, these "interactions" observed at the phenomenal level between REs are, at a deeper level, the mutual influences and dynamic relatedness occurring between their respective "precursors" (i.e., those stable patterns in the CRO-shaped DPs network) via more fundamental "Dependency Paths (DPs)" (these DPs are also constrained by CRO rules and operate under the drive of BSO). This interaction between "precursors," further "co-shaped" by the "projection rules" of the SROs of the corresponding RLs (and possibly the overall coordinating rules of the CRO and their respective "identifiability thresholds"), is then presented at the phenomenal level as the specific interaction modes we observe between REs (e.g., attraction, repulsion, information exchange, energy transfer, functional complementarity).

The behavioral characteristics and response modes exhibited by REs in these "projected interactions" constitute their important "interactive attributes" or "functional attributes." The appearance and operational rules of these attributes are strictly limited by the SRO of their commonly encompassing RL and the higher-order CRO.

3. Direct determination by the "projection rules" and referential framework of its encompassing SRO and higher-order CRO regarding which aspects of the "precursor" are "projected" as specific attributes of the RE, and the endowment of these attributes with relative measures and (within that hierarchical reference) meaning:

An SRO's "projection rules" and its "identifiability threshold" not only "manifest" REs but also directly "define" the "coordinate system," "metrics," and "interpretive language" for observing and describing RE attributes within that RL.

A higher-order CRO, through its governance of the entire RS, endows the "projection rules" of all internal SROs, the attributes of all

REs, and their interactions with broader contextual consistency and (relative to that RS as a whole) meaning.

For example, the "mass" or "charge" attributes of an electron (as an RE) are measurable values "projected" under the rules and referential framework (including its "identifiability threshold") defined by the grand CRO of the Standard Model of particle physics (and its internal relevant SROs), through the specific interaction of its "precursor" (some underlying field excitation or relational pattern) with other "precursors" (via gauge DPs) within that CR framework. Detached from this CR framework, the precise definition and numerical values of these attributes might lose meaning or change.

8.3.3 Manifestation of Hierarchical Relativity and Polymorphism of RE Attributes

Since the attributes of an RE are phenomenal manifestations of its "precursor" under the "projection rules" and "identifiability threshold" of a specific hierarchical CR (SRO/CRO), this necessarily leads RE attributes to exhibit profound hierarchical relativity and potential polymorphism:

1. Hierarchical relativity: An RE's attribute may possess a certain clear specification under the referential framework of the SRO defining its directly encompassing RL; however, if placed under the more macroscopic referential framework of its encompassing RS's CRO, or under the referential framework of a broader ARO containing that RS, the "meaning," "importance," or "mode of relatedness" of its attribute with other elements may present different interpretations. Even its boundary as "an independent RE" might need to be re-evaluated (because a higher-order CR's "identifiability threshold" might be different).

2. Manifestation of polymorphism: More fundamentally, the same "underlying reality" (an RE's "precursor," e.g., a specific, complex dynamic pattern in the CRO-initially-shaped DPs network), if it can be "projected" simultaneously or sequentially by different SROs (each defining different RLs, possessing different "commonality rules," "projection rules," and "identifiability thresholds"), then this same "precursor" may manifest in different RLs as REs with entirely different forms, attributes, and behavioral patterns.

This is like the same piece of music (the abstract score information of the "precursor") producing one type of RE (a piano piece)

when played on a piano (SRO1's projection rules and identifiability threshold), and another type of RE (a violin piece) when played on a violin (SRO2's projection rules and identifiability threshold). Their "precursors" are "identical" at some abstract level, but through the "performance" (projection) of different "instruments" (SRO projection mechanisms), vastly different "sound artworks" (REs) are produced at the phenomenal level.

Similarly, at the cognitive level, the same external "stimulus source" (which is essentially some complex DPs network activity), if "secondarily projected" by an observer's different cognitive CRs (e.g., a CR based on sensory intuition, and a CR based on rational logical analysis, each with different "projection rules" and "identifiability thresholds"), may also produce entirely different subjective experiences and cognitive results (REs).

This possibility of "one source, multiple phases" or "polymorphic manifestation" profoundly reveals the "projection dependence" of RE attributes, the CR (especially "identifiability threshold") determinacy of their "visibility," and the infinite richness and relativity of cosmic phenomena.

8.3.4 Re-exploration of "Mutual Corroboration of Existence" and "Co-shaping of Projection Rules"

"Relative Entities (REs)," within their encompassing "Relatedness Level (RL)," are not merely passively shaped by the "projection rules" of their SRO (and CRO). Through their interactions (as projections of interactions between their "precursors" and between "precursors" and the observer's RL), while dynamically and relatively mutually defining and corroborating their phenomenal-level "existence," the collective existence, configuration, and interaction patterns of these manifested REs may also, via the feedback of the "Global Bidirectional Self-Organization (BSO) mechanism," collectively participate in the dynamic shaping, maintenance, and potential evolution of the "commonality rules" (i.e., "projection rules") and "identifiability threshold" of their encompassing RL's SRO.

This implies that the attributes of an RE are not only the result of its "precursor" manifesting under given "projection rules" and "identifiability threshold," but also dynamically negotiated and established through continuous interaction and mutual reference within

the "relational ecosystem" constituted by all coexisting REs within that RL.

The "projection rules" and "identifiability threshold" themselves thus also possess a certain "historicity" and "evolvability" (i.e., the SRO's own EEA_RL); they are not immutable but may undergo adaptive adjustments or reconstructions with the evolution of their RL's internal RE "ecosystem."

This further reinforces the thoroughly relational origin of all RE specifications: they originate not only from the "projection" relationship between their "precursor" and hierarchical CRs, but also from the complex interactive relationships between themselves and between them and the "rule environment" (SRO/CRO and their "identifiability thresholds") they collectively shape.

8.4 Other Core Characteristics of REs (As Inevitable Manifestations of "Hierarchical Projection Patterns")

Having profoundly understood the core essence of a "Relative Entity (RE)" as a "phenomenal-level projection pattern" stably manifested under the joint action of the "projection rules" and corresponding "identifiability threshold" of a "Specific Commonality Reference (SRO)" of a particular "Relatedness Level (RL)" (all this under the constraint and governance of a higher-order CRO's macroscopic referential framework), acting upon its "precursor" (a "Dependency Path (DPs)" network pattern initially shaped by a core "Commonality Reference, CRO"), and its thoroughgoing relationality of "no intrinsic attributes," other important core characteristics of REs also clearly emerge. These characteristics are likewise the inevitable, non-teleological logical consequences of its being a "hierarchical projection pattern."

8.4.1 Extreme Relativity of Existence and Decisive Dependence on Hierarchical CRs (SRO/CRO)

The "existence" of an RE itself is not an absolute "presence" independent of any conditions. On the contrary, it exhibits an extreme, profound relativity and a decisive dependence on hierarchical "Commonality References (CRs)" (specifically, the SRO defining its "Relatedness Level, RL," the CRO governing its "Relatedness System, RS," and even broader AROs).

1. The existence and form of an RE as a "projection pattern" depend entirely on its "precursor" and the rules and "identifiability threshold" of the hierarchical CRs (SRO/CRO) that define and "project" it:

Whether an RE can "exist" as an identifiable "phenomenal pattern," and what specific form, structure, and behavioral characteristics it will exhibit once it "exists," are not unilaterally determined by its "precursor" (the CRO-initially-shaped DPs network pattern), nor are they created ex nihilo by the "projection rules" of SRO/CRO. It must be the result of these two—the "projected content (precursor)" and the "projection framework and rules (SRO/CRO and their identifiability thresholds)"—being "compatible" and "matching" in some specific way and capable of producing a stable "projection effect."

Without a suitable SRO/CRO to provide specific "projection rules" and a stable referential framework (including an appropriate "identifiability threshold"), then even if the RE's "precursor" (DPs

network pattern) objectively exists (as underlying relational activity), it might not be able to "manifest" at the phenomenal level of that RS as an identifiable RE, merely remaining as unperceivable underlying relational activity or potentiality "veiled" by "Pure Nothingness."

Conversely, the same RE "precursor" (e.g., a certain complex DPs network dynamic), if placed under the "projection rules" and "identifiability thresholds" of different SROs/CROs (e.g., "observed" or "processed" by different RLs or RSs, or if the "scale" or "precision" of observation changes), could well "project" REs with entirely different forms, attributes, and meanings, or might not form any stable RE projection at all under certain SROs/CROs.

2. The "existence" of an RE is thoroughly relative: It is always "the projection result relative to a certain (or certain) specific hierarchical CR (SRO/CRO) referential framework and its 'identifiability threshold'." Detached from this referential framework, to speak of an RE's "independent existence" is meaningless.

8.4.2 Dynamic Transience: Finite "Existence Period (T_RE)" and its Fundamental Dependence on CR Stability

As a stable relational pattern of dynamic "projection," the "existence" of an RE is also necessarily dynamic and transient, rather than an eternally unchanging static "thing."

1. The stability (T_RE) of an RE is limited by the stability of its "precursor" DPs network pattern and the "period of definitional power (T_CR)" of its dependent hierarchical CRs (SRO/CRO):

The "existence period (T_RE)" of an RE—the timescale for which it can continuously manifest as an identifiable, relatively stable phenomenal pattern—is finite. This finitude originates from at least two levels:

The dynamic stability of its "precursor" (the specific pattern in the CRO-initially-shaped DPs network): The DPs network itself is ever-flowing (influenced by factors like "Fluidity of Internal Relations, FIR"); any specific pattern or configuration formed within it may change or disintegrate due to the network's internal dynamic evolution (e.g., changes driven by the "Existence-Evolution Paradox, EEP"). If an RE's "precursor" pattern is no longer stable or its manifestation intensity falls below the "identifiability threshold," then the "projection" of this RE naturally cannot be sustained.

The finite "period of definitional power (T_SRO, T_CRO)" of its dependent hierarchical CRs (SRO and higher-order CRO): As discussed in Chapter 4, any CR (whether SRO or CRO) has its own "period of definitional power (T_CR)" and will undergo destabilization and reconstruction (i.e., "displacement" on its EEA) driven by the EEP of its encompassing RS or RL. If the SRO (or the CRO governing that SRO) that defines and "projects" an RE undergoes fundamental transformation or disintegration, then the original "projection rules" and "existence basis" will become invalid. This usually leads to profound changes, transformations, or "demise" (i.e., no longer being projected in the original way by the new CR') of the REs manifested under that old CR framework.

2. The "birth" and "death" of an RE are the emergence and disintegration of a "projection pattern":

The "birth" or "emergence" of an RE is the event where its "precursor" (DPs network pattern) can be stably "projected" as an identifiable phenomenal pattern under a specific hierarchical CR (SRO/CRO) referential framework and its "identifiability threshold."

The "demise" or "disintegration" of an RE is the process whereby this specific "projection pattern," due to the collapse of its "precursor's" stability, its manifestation intensity falling below the "identifiability threshold," or a change in the "projection rules" of its dependent SRO/CRO (e.g., CR destabilization), can no longer be stably manifested, thereby reverting to a more diffuse, unprojected DPs network potentiality or a state of "Pure Nothingness" (relative to that old CR).

The entire process is the dynamic birth and death of relational patterns, not the creation and destruction of matter in the traditional entity-based sense.

8.4.3 Hierarchical CR (SRO/CRO)-Dependent Identifiability and the Relative Fuzziness of Phenomenal Boundaries

As a "projection pattern" perceived at the phenomenal level, an RE's identifiability and the clarity of its "boundaries" also profoundly depend on the rules and "identifiability threshold" of the hierarchical CRs (SRO/CRO) that define and "project" it, as well as (if cognitive processes are considered) the observer's own cognitive CRs.

1. The identifiability of an RE is jointly endowed by the "projection rules" and "identifiability threshold" of hierarchical CRs (SRO/CRO):

A DPs network pattern (the "precursor" of an RE) can be "projected" as an identifiable RE because, under the "projection rules" and "commonality standards" of its encompassing SRO/CRO, the "projection pattern" it represents exhibits sufficient internal cohesiveness, distinctness from the "background" (other DPs activities or more diffuse "Pure Nothingness" within the RL/RS), and relative repeatability of behavioral patterns. Furthermore, its "manifestation intensity" must reach or exceed that CR's "identifiability threshold," thereby enabling it to "stand out" from the relational network as a coherent, denotable "unit."

For a cognitive subject, the final establishment of this "identifiability" also requires further "processing" and "confirmation" by its internal cognitive CRs (such as perceptual patterns, conceptual frameworks, attention mechanisms, etc., each also possessing its own "identifiability threshold").

Therefore, the "identifiability" of an RE is not its inherent attribute but a cognitive result endowed by the hierarchical CRs (SRO/CRO) that generate it and (possibly) the CRs that cognize it, within a specific context.

2. The relative fuzziness of RE phenomenal boundaries and its CR (and "identifiability threshold") dependence:

Since an RE is purely "projected" by relations (DPs network patterns) under specific hierarchical CR rules and its "identifiability threshold," its "boundary" with the "background" (other DPs activities within the RL/RS) or other REs is not, ontologically, an absolutely clear, fixed physical limit. Rather, it is more like a dynamic, permeable transitional zone with a certain degree of fuzziness.

The "clarity" and "position" of this phenomenal-level boundary are highly dependent on the precision of the "projection rules" of the selected SRO/CRO, the setting of its "identifiability threshold," and our (as cognitive subjects possessing our own cognitive CRs) "observational scale" or "cognitive resolution."

Under different CR frameworks (e.g., a more macroscopic CRO might "blur" the fine boundaries of REs identifiable by its internal SRO, as it might employ a coarser "identifiability threshold"), or when examined at a finer level (e.g., using a theoretical tool with higher "resolution" or a CR with a lower "identifiability threshold" to analyze the RE's "precursor" DPs network), an originally seemingly clear RE

boundary might become fuzzy, shift, or even disappear. This intrinsic fuzziness is a direct manifestation of the RE's essence as a relational projection.

8.5 The Operational Role of Relative Entities (REs) in Relatedness Theory's Hierarchical Structure and Dynamics

The "Relative Entity (RE)," as the core concept in *Relatedness Theory* for describing the basic units of the phenomenal world, its significance lies not only in how it is "projected" from the underlying "Dependency Path (DPs)" network. More importantly, once it manifests as an identifiable, transiently stable relational pattern, it begins to play specific operational roles within its encompassing hierarchical structure and profoundly participates in the overall dynamic processes of *Relatedness Theory*. An RE is not a passive "projected image" but an active participant in "Relational Reality" for information processing, energy/matter (if applicable) transformation, and the exhibition of complex behaviors under a specific referential framework.

8.5.1 REs as the Manifested "Content" and Basic Operational Units of a "Relatedness Level (RL)"

The "phenomenal content" of an RL is filled by REs: The specific, observable or analyzable "content" of a "Relatedness Level (RL)" defined by a "Specific Commonality Reference (SRO)" is precisely constituted by the various "Relative Entities (REs)" stably manifested within that RL and their interactions. REs are like the "actors" and "props" on the specific "stage" of an RL; their diversity, arrangement, and interaction modes collectively exhibit that RL's unique "landscape" and operational characteristics.

REs are the basic operational units within an RL: An RL's specific operational logic (stipulated by the core "commonality rules" of its SRO), such as specific information processing flows, material transformation pathways, or behavioral pattern sequences, ultimately needs to be concretely realized through specific state changes of its internal REs and the interactions occurring between them via DPs. REs are the "basic executive units" or "information nodes" for an RL to perform its specialized operations. For example, in a metabolic pathway RL of a biological cell RS, the enzymes, substrates, products, etc. (as REs) involved in the reaction, through their chemical reactions (DPs), collectively accomplish that RL's metabolic transformation operations.

8.5.2 REs as "Nodes" and "Pattern Embodiments" of the "Dependency Path (DPs)" Network

REs are (macroscopic) "nodes" in the DPs network: Although REs themselves are constituted by finer DPs network patterns, once an RE emerges as a stable, identifiable "projection pattern," it can, within its encompassing RL or higher-level RS, play the role of a relatively concentrated "information convergence point," "influence divergence point," or "hub node for relational connection." The "starting points" and "endpoints" (at the phenomenal level) of DPs connecting different REs are these REs.

REs are stabilized embodiments of specific DPs network configurations and dynamics: An RE can stably manifest precisely because the DPs network patterns constituting its "precursor," under specific SRO/CRO "projection rules," have reached a dynamic self-consistency and stability. Therefore, an RE itself is direct "evidence" and a "phenomenal-level embodiment" of a certain specific configuration and dynamic behavioral pattern that its underlying DPs network can stably maintain under a specific referential framework. Observing the characteristics and behaviors of REs is an important way for us to indirectly understand the organization and operational laws of the DPs network behind them.

8.5.3 REs as Participants and Products of the "Global Bidirectional Self-Organization (BSO)" Process

The emergence, stability, change, and demise of "Relative Entities (REs)" all profoundly embody and participate in the core organizing principle of *Relatedness Theory*—the "Global Bidirectional Self-Organization (BSO) mechanism."

The emergence and maintenance of REs are results of BSO: That an RE can be "projected" from its "precursor" (CRO-screened DPs network pattern) by an SRO and stably manifest is itself a result of the BSO mechanism operating at a specific level (RL). It involves the self-organization of the DPs network, the guidance of the SRO's "Defining Field," and interaction with the surrounding environment (other REs and DPs activities within the RL), ultimately reaching a transient dynamic equilibrium.

State changes and interactions of REs are concrete manifestations of BSO operation: Within an RL/RS, the mutual influences and information exchanges between REs via DPs, as well as their respective state changes caused by internal or external factors, are the most direct and concrete manifestations of the BSO mechanism at the

phenomenal level. These micro- or meso-level RE interactions collectively constitute the evolution and self-organizing adjustment of the entire RL/RS's macroscopic state.

REs influence higher levels through BSO's "bottom-up" effect: The collective behavior, state changes, or large-scale emergence/demise of REs will, via the BSO mechanism, "bottom-up" influence the stability of their encompassing SRO, the overall operational mode of their RL, and may even further affect the macroscopic state and evolutionary path of the higher-order CRO governing that RL and its RS. For example, in an ecosystem RS, a drastic change in the population of a certain keystone species RE (such as a top predator or a key producer) will, through chain reactions (adjustments in the DPs network), profoundly affect the structure and stability of the entire ecosystem (potentially leading to the reconstruction of its SROs or even CRO).

8.5.4 The Evolution of REs and its Reflection in the "Existence-Evolution Paradox/Axis (EEP/EEA)"

"Relative Entities (REs)," as the direct constituents of the phenomenal world, their own evolution and the evolution of the collective patterns they form are concrete manifestations and observable indicators of the evolution of their encompassing "Relatedness Level (RL)" or "Relatedness System (RS)" along the "Existence-Evolution Axis (EEA)," driven by the more macroscopic "Existence-Evolution Paradox (EEP)."

The stability of REs, the emergence of new REs, or the demise of old REs are concrete phenomenal manifestations of EEP:

An increase in the "evolutionary rate/tension (v)" within an RL or RS (e.g., due to intensified environmental changes, or accumulation of internal informational conflicts) may lead to a decrease in the stability (T_RE) of existing REs, accelerating their disintegration or transformation into other patterns.

When the "Existence-Evolution Paradox (EEP)" accumulates to a certain degree, it may trigger adjustments or even the termination of the "period of definitional power (T_CR)" of its RL's SRO or RS's CRO. In this process, old REs may "die off" on a large scale, while new REs adapted to the new CR' rules may emerge from their "precursors" (reorganized DPs network patterns) through the "projection" of SRO'.

"Transition nodes" of the core CR on the EEA are accompanied by profound transformations in the world of REs: When the core SRO/CRO of an RL/RS undergoes a fundamental "transition node" on its

own "Existence-Evolution Axis (EEA)" (i.e., CR destabilization and reconstruction), all aspects of the REs within that RL/RS—their types, properties, conditions for existence, interaction rules, and the overall "phenomenal landscape" they constitute—will undergo profound, often subversive, cascading transformations. The old "world" of REs may collapse, and a new "world" of REs will be reconstructed under the new CR' framework. This is analogous to how scientific revolutions (transformations of cognitive CROs) completely change our understanding of "what things (REs) exist" in the cosmos and "how they operate."

8.6 Chapter Summary: Relative Entity—A Transient Pattern Defined by Hierarchical Reference, Woven by Relations, Dancing in the Phenomenal World

This chapter has thoroughly elucidated the "Relative Entity (RE)" as the core concept in *Relatedness Theory* for describing identifiable "things" or "phenomenal patterns" in our experiential world. We have fundamentally emphasized *Relatedness Theory's* thorough sublation of the traditional conception of "entity": an RE is not an independently existing "thing-in-itself," but a product "projected" from a more fundamental "Relational Reality" under a specific hierarchical referential framework.

We first precisely defined the hierarchical positioning of REs and their "hierarchical screening-projection" generative mechanism. The existence and definition of an RE strictly follow a chain of progressive specification from "Pure Being" potentiality to a core CRO (defining an RS and initially screening the DPs network), and then to a specific SRO (defining an RL and "projecting" REs from the CRO-screened DPs network). An RE is thus necessarily subject to "dual reference"—direct reference from its directly encompassing RL's SRO (determining its specific form and local rules) and indirect yet fundamental reference from its encompassing RS's CRO (ensuring its compatibility with the RS as a whole and its macroscopic meaning)—and even multiple references from broader AROs. The ontological status of an RE is that of a direct carrier of phenomena; its "existence" is the relatively stable manifestation of a specific "hierarchical projection pattern," and all its specifications originate from its "precursor" (the CRO-screened DPs network pattern) and the SRO/CRO "projection" process.

Subsequently, we detailed the "projection" mechanism itself: the direct "precursor" of an RE is a specific dynamic pattern of the DPs network already "screened" and "pre-processed" by the rules of its encompassing RS's core CRO. The "commonality rules" (i.e., "projection rules") inherent in its encompassing RL's SRO act like a "manifestation condition setter" or "phenomenal presentation channel" for these "precursor" patterns. Through a non-teleological "stabilizing selection" and "identifiable presentation" of "precursor" patterns, they are "projected" as REs perceivable at the phenomenal level.

The core of this chapter lies in emphasizing the thoroughgoing relationality of an RE's "no intrinsic attributes." All specifications of an

RE—physical, chemical, biological, cognitive, social—are not inherent to it but are concrete, observable or measurable appearances at the phenomenal level, representing relational characteristics of its "precursor" (CRO-screened DPs network pattern) under the "projection rules" of a specific SRO and the referential framework of a higher-order CRO. The attributes of an RE profoundly embody hierarchical relativity and potential polymorphism, and are dynamically established through its interactions with other REs (as projections of "precursor" interactions) and "mutual corroboration of existence" within its encompassing RL.

We also explored other core characteristics of REs, including the extreme relativity of their existence and CR (SRO/CRO) dependence; their transience as dynamic "projection patterns" (possessing a finite "existence period T_RE," their "birth" and "death" being the emergence and disintegration of relational patterns); and their SRO/CRO-referenced identifiability and relatively fuzzy phenomenal boundaries. By contrasting with traditional "entity" conceptions, we further highlighted *Relatedness Theory's* revolutionary ontological reconstruction of the concept of "thing."

Finally, we elucidated the operational role of REs in *Relatedness Theory's* hierarchical structure and dynamics. REs constitute the manifested "content" and basic operational units of a "Relatedness Level (RL)"; they are "nodes" and "pattern embodiments" of the "Dependency Path (DPs)" network. As active participants and dynamic products of the "Global Bidirectional Self-Organization (BSO)" process, their own evolution (emergence of new REs, demise of old REs, change of attributes) profoundly reflects and concretely embodies the non-teleological evolution of their encompassing RL/RS along the "Existence-Evolution Axis (EEA)," driven by the more macroscopic "Existence-Evolution Paradox (EEP)."

In summary, the "Relative Entity (RE)" is the direct phenomenal manifestation of *Relatedness Theory's* "primacy of relations" ontology. It is not the ultimate primordium of the cosmos, but rather a "phenomenon," perceivable and describable by us, emerging from a more fundamental, not directly perceivable "Relational Reality" (the DPs network, originating from PVs and Pure Being potentiality) under a strict hierarchical referential framework (CRO screening, SRO projection). Understanding this derivative, projective, relational, and dynamic nature of REs is key to comprehending how *Relatedness Theory*, starting from its most fundamental ontological posits, progressively constructs this rich, colorful, and continuously evolving phenomenal world that we

experience. It paves the way for us to transcend traditional entity-based theories and essentialism, and to re-examine the essence of "things," the origin of attributes, and the dialectical unity of "thing" and "relation" from a new, profound perspective.

Chapter 9: Pure Nothingness—As the Relative Unmanifested State of Pure Being and the Definer of Phenomenal World Boundaries

9.0 Introduction: In the Infinite Background of "Pure Being," Why is "Pure Nothingness" Necessary?—The Logical Inevitability of the Finitude and Relativity of Manifested Existence

At the outset of *Relatedness Theory's* ontological construction, we established "Pure Being" as the sole, absolute ontological foundation of the cosmos. It is an all-encompassing, infinitely rich field of potentiality, the ultimate source of all cosmic possibilities—including all potential "Primordial Vectors (PVs)" and their "relational propensities," all possible "Dependency Path (DPs)" networks, all "Commonality References (CRs)" that might emerge, and the "Relative Entities (REs)" that ultimately manifest.

However, a core question immediately arises: if "Pure Being" is so infinite and all-encompassing, how are those finite, specifically determined "manifested existences" that we experience, or can theoretically define (e.g., a specific "Relatedness System, RS," a particular "Relatedness Level, RL," or an identifiable "Relative Entity, RE"), demarcated from this infinite background and endowed with their relative independent identities? What constitutes the "exterior" of these finite existences? What represents those infinite possibilities "not included" or "not actualized" within a specific manifested structure?

To answer this series of profound questions, *Relatedness Theory* introduces the core concept of "Pure Nothingness." It must be emphasized from the very beginning that this "Pure Nothingness" is by no means the "absolute void" of traditional philosophy or everyday language, which is opposed to "being" and signifies "nothing at all." Under the premise of "Pure Being" as the sole ontological cornerstone, "Pure Nothingness" is a unique posit within the ontological framework of *Relatedness Theory*; its meaning and existence depend entirely on "Pure Being" and the specific structures manifested therefrom.

This chapter aims to precisely define the essence of "Pure Nothingness" in *Relatedness Theory*, systematically elucidate its core characteristics (especially its profound relativity, potentiality, dynamism, and crucial

"veiling effect"), and deeply reveal the indispensable yet strictly non-teleological role it plays in the entire cosmic tableau of *Relatedness Theory*—particularly in defining the boundaries of manifested existence, serving as an infinite "reserve" of unactualized potentiality, and influencing our understanding of causality from a more fundamental ontological level. Understanding "Pure Nothingness" is a key link in understanding how *Relatedness Theory* transitions from infinite potentiality to finite reality and maintains the internal logical self-consistency of its theoretical system.

9.1 The Core Definition of "Pure Nothingness": The Unmanifested Potential State of Pure Being, Relative to a Specific Commonality Reference (CR)

The definition of "Pure Nothingness (PN)" in *Relatedness Theory* profoundly embodies its core principles of "primacy of relations" and "context-dependence." It is not an independent ontological category but a relative description of the state of "Pure Being."

9.1.1 The Absolute Relativity of "Pure Nothingness" and its CR-Dependence

The existence and meaning of "Pure Nothingness" are always and absolutely relative to one (or a set of) specific "Commonality Reference(s) (CR)." This CR can be a "Specific Commonality Reference (SRO)" defining a "Relatedness Level (RL)," a "Central Commonality Reference (CRO)" defining a "Relatedness System (RS)," or even an "Encompassing/Inclusive Commonality Reference (ARO)" governing a broader domain. Without a specific CR as the focus of reference and standard of demarcation, to speak of "Pure Nothingness" is meaningless. For "Pure Nothingness" is precisely "the remainder" relative to the region of "manifested existence" "illuminated" or "organized" by this CR. Different CRs will "excise" or "define" different "manifestation regions" from the infinite potentiality of "Pure Being"; therefore, the same "Pure Being" background, relative to different CRs, will correspond to different scopes and contents of "Pure Nothingness."

9.1.2 The Ontological Origin of "Pure Nothingness": As an Unmanifested State of "Pure Being"

"Pure Nothingness" is not an independent entity coequal in ontological status with "Pure Being," still less is it the antithesis or "non-existence" of "Pure Being." It is that portion of infinite potentiality within "Pure Being"—that sole, infinitely rich field of potentiality—which has not been activated, organized, or incorporated into the effective scope of the "Defining Field" and "projection rules" of the CR currently in analytical focus. Therefore, "Pure Nothingness" is a relative, unmanifested state description of "Pure Being." It represents that part of "Pure Being's" potentiality not yet touched by a specific CR's "definitional power," not yet structured, not yet endowed with a specific "manifested form." It is "possibility" in a state of "latency" within a specific referential framework.

9.1.3 "Pure Nothingness" as "The Potentiality Untouched and Reality Veiled by This CR"

For any finite CR (and the RS/RL it defines), "Pure Nothingness" is, within the infinite potentiality of "Pure Being," all those:

"Primordial Vectors (PVs)" and their potential "Dependency Path (DPs)" combinations that do not conform to that CR's core "commonality rules";

PVs and DPs networks that are outside the effective sphere of influence of that CR's "Defining Field";

Or, even within the CR's defining field, those underlying DPs network dynamics or PV potentialities that cannot be stably "manifested" as identifiable "Relative Entities (REs)" because they do not satisfy its "projection rules." "Pure Nothingness" thus constitutes, relative to this specific CR, the "veiled" infinite possibilities and the potential, deeper or different types of "Relational Reality."

9.2 Core Characteristics of "Pure Nothingness": Potentiality, Dynamism, and Profound "Veiling Effect" (and its Relation to a CR's "Identifiability Threshold")

In *Relatedness Theory*, "Pure Nothingness (PN)" is not a passive, vacuous concept. Rather, from its definition as the relative unmanifested state of "Pure Being" (i.e., that portion of "Pure Being" potentiality not activated, organized, and incorporated into its manifested structure relative to a specific "Commonality Reference, CR" and its inherent "identifiability threshold"), a series of profound core characteristics crucial for understanding cosmic structural generation and dynamic evolution is derived. These characteristics—potentiality, dynamism, and especially the critical "veiling effect"—collectively reveal the unique status and role of "Pure Nothingness" in the cosmic tableau of *Relatedness Theory*.

9.2.1 Potentiality: "Pure Nothingness" as an Unmanifested Reserve of Infinite Possibilities (Relative to the Current CR's "Identifiability Threshold")

"Pure Nothingness" is by no means "absolute emptiness" in the traditional sense. According to its core definition, the first core characteristic of "Pure Nothingness" is its infinite potentiality.

1. The unutilized portion of "Pure Being's" potentiality (demarcated by the CR's "identifiability threshold"): It is precisely that vast portion of "Pure Being's" infinitely rich collection of "Primordial Vectors (PVs)" and their "potential commonality rules" (these rules embodying their "relational-specification potentiality") initially manifested through early "Global Bidirectional Self-Organization (BSO) mechanism" interactions, which, under the "Defining Field," "projection rules," and crucially, the inherent "identifiability threshold" of the current specific "Commonality Reference (CR)," has not yet been stably "ignited" as "Dependency Paths (DPs)," "projected" as identifiable "Relative Entities (REs)," or organized into higher-order CRs.

2. Full of possibilities for forming new structures: "Pure Nothingness" is therefore replete with infinite possibilities for forming new DPs, new REs, and even entirely new CRs. It is the ultimate "reservoir of possibilities" from which all future new structures, new orders, and new meanings in the cosmos can emerge, and the "virgin territory" not yet "reclaimed" or "illuminated" by current manifested structures (under

their specific CRs and "identifiability thresholds"). The "raw materials" for any innovation and evolution ultimately originate from this background of "Pure Nothingness" relative to currently manifested structures.

3. Not "no-thing," but "all things are possible (but not yet this thing, or not yet identified by this CR)": Therefore, "Pure Nothingness" does not mean "there is nothing at all," but rather "there is nothing of 'this thing' specified and manifested by the current CR (by virtue of its rules and 'identifiability threshold')." It represents all those infinite other possibilities that are "not this specific manifested structure" or "have not met the current CR's 'visibility' standard."

9.2.2 Dynamism: The Eternal Mutual Transformation Between "Pure Nothingness" and "Manifested Existence" (Dynamically Influenced by CR and its "Identifiability Threshold")

The boundary between "Pure Nothingness" and "manifested existence" defined by a specific CR is not a fixed, static division, but an eternally dynamic, interpenetrating interface. This dynamism is profoundly influenced by the evolution of the CR itself and possible dynamic adjustments to its "identifiability threshold."

1. Transformation from "Pure Nothingness" to "manifestation": With the evolution of a CR itself (its "displacement" on its "Existence-Evolution Axis, EEA," which may lead to changes in its "commonality rules" and "identifiability threshold"), the continuous action of the eternal random fluctuations of the "Pure Being" background, or the interaction of a "Relatedness System (RS)" with its environment (via the "Global Bidirectional Self-Organization, BSO" mechanism), those PV potentialities originally in a state of "Pure Nothingness" relative to a certain CR (and its old "identifiability threshold") may well be "responsively activated" and organized by a new CR (or an evolving old CR in a new way, e.g., its "identifiability threshold" is lowered or its rules are adjusted), thereby transforming into "manifested" DPs, REs, or new SROs/RLs. This can be seen as a process of potentiality being "extracted" and "structured" from the "Pure Nothingness" reserve, the conditions and scope of which are directly constrained by the relevant CR's "identifiability threshold."

2. Transformation from "manifestation" back to "Pure Nothingness": Conversely, already "manifested" structures (REs, DPs, even entire RLs or RSs) may also lose their "existence basis" and organizational principles for maintaining their own existence due to a decline in the

stability of their dependent core CR (SRO or CRO), its entry into the end phase of its "period of definitional power (T_CR)," or even its final destabilization and disintegration (which may cause its "identifiability threshold" to also "fail" or become meaningless). At this point, the PVs and their "relational-specification potentiality" constituting these manifested structures may revert to a diffuse potential state, unorganized by any specific CR, i.e., a state of "Pure Nothingness" relative to new or other surrounding CRs (each with its own "identifiability threshold"). This can be seen as the "dissolution" or "release" of "structure" into "potentiality."

3. The "unrest" of "Pure Nothingness" itself: "Pure Nothingness" itself is also not a static, unchanging background. Firstly, as part of "Pure Being," it is necessarily also subject to the intrinsic eternal random fluctuations of "Pure Being," meaning that in any "region" (in an abstract sense) of "Pure Nothingness," PV potentialities are constantly and spontaneously approaching their activation threshold (relative to some potential, yet-to-be-formed CR). Secondly, manifested RSs continuously engage in (generalized) exchanges of matter, energy, and information with relative "Pure Nothingness" through their boundaries, making "Pure Nothingness" a dynamically interactive "environment" with the manifested world. More importantly, the "Infinite Potentiality Pressure (IPP)" exerted by manifested structures on the "Pure Nothingness" background (as a source of "evolutionary rate, v" in the "Existence-Evolution Paradox, EEP") also indicates that "Pure Nothingness" is not a passive, inert background, but a dynamic factor posing a continuous "existential challenge" to finite, manifested structures.

9.2.3 Profound "Veiling Effect": As an Inevitable Aspect of Infinite Potentiality Under the Reference of a Finite CR , and its Association with the Two Reasons for PVs Being in a State of "Pure Nothingness"

This is an extremely important characteristic of "Pure Nothingness," possessing fundamental ontological and (indirect) epistemological dual significance. Because any "Commonality Reference (CR)" (whether SRO, CRO, or ARO) and the "Relatedness System (RS)" or "Relatedness Level (RL)" it defines, its "definitional power," its "projection rules," and crucially, its inherent "identifiability threshold" are necessarily finite, local, and possess specific "commonality preferences," it can therefore only "screen," "activate," and "manifest" an extremely limited portion of "Pure Being's" infinite potentiality—that

which is compatible with its own "core commonality rules" and can meet its "visibility" standard.

1. Ontological-level "veiling": Relative to any specific, finite CR , the vast majority of "Pure Being's" potentiality—including innumerable potential "Primordial Vectors (PVs)" and the infinitely diverse "Dependency Path (DPs)" network configurations they might form, and even all other potential CR possibilities incompatible with or not yet emerged alongside the current CR—is necessarily in a state of being "veiled" or "excluded" from that CR's direct "domain of manifestation" (i.e., the range "illuminated" by its "identifiability threshold"). This "veiled" expanse of infinite potentiality, relative to this CR , constitutes the "Pure Nothingness" background for that CR (and the manifested structure it defines).

2. "Pure Nothingness" veils infinite potential relations and influencing factors; its specific reasons can be summarized as (integrating the latest interpretation from Chapter 4, section 4.2.4): This infinite potentiality, existing in the "Pure Nothingness" background and being "veiled," is neither non-existent nor unimportant. On the contrary, it contains an infinitely vast array of potential relations and possible influencing factors that the CR (and the RS/RL it defines) cannot incorporate into its current organizational framework or manifest as identifiable REs through its existing "projection rules" and "identifiability threshold." Specifically, "Primordial Vectors (PVs)" being in a state of "Pure Nothingness" relative to a particular CR primarily occurs for two reasons:

(1) Potential relational relevance to the CR, but their activation intensity/pattern complexity is below that CR's "identifiability threshold": These PVs, or the potential DPs/REs patterns they form, might have "inherent necessary propensities" compatible with the "commonality rules" embodied by that CR, or they might possess a potential "logical proximity" or "structural relatedness" to that CR's stable relational structural pattern within the "possibility space" of "Pure Being." However, because their current activation intensity, the complexity of the connection patterns they form, or the "degree of manifestation" of the information they carry fails to reach that CR's inherent "identifiability threshold" (i.e., under the current "referential parameters" of the CR "lens," they appear as "too weak a signal" or "insufficiently stable and clear a pattern"), they are not stably organized into that RS's ordered structure and exist at the phenomenal level in an "invisible" potential

state. These PVs constitute the RS's direct, potentially activatable "proximal Pure Nothingness."

(2) Their "inherent necessary propensity" fails to form an effective "structural intersection" or "commonality rule resonance" with the "commonality rules" embodied by that CR within the "possibility space" of "Pure Being": The intrinsic "way or potentiality of existence and interaction" of these PVs may be fundamentally incompatible or mismatched with the specific set of "commonality rules" solidified by the current CR, or they may be too distant in the abstract "possibility space" for effective "Dependency Path (DPs)" connections—capable of being "referenced" and organized by that CR—to be established between them via the BSO mechanism (even if their potential activation intensity might be high, they cannot be "manifested" due to mismatch with CR rules). They are like those distant potentialities in the infinite "relational possibility network" of "Pure Being" that have not effectively "structurally intersected" or "resonated in commonality rules" with the current CR's stable relational structural pattern. Therefore, they are simply not included within that CR's "scope of reference" and are even more "invisible" to it. These PVs constitute the more distant, vaster "distal Pure Nothingness."

3. Universality and consequences of the "veiling effect": These "veiled" factors, although not directly "illuminated" by the current CR , as the overall background of "Pure Being," may still, through various indirect, non-local ways, or ways that only become apparent when the CR evolves (at EEA "transition nodes," when the old CR's "veiling effect" may weaken and its "identifiability threshold" may change or become invalid), exert profound, sometimes decisive, influence on manifested structures. The "veiling effect of Pure Nothingness" is one of the fundamental sources of cosmic complexity, incomplete predictability, and the continuous emergence of novelty.

These three core characteristics—potentiality, dynamism, and the profound "veiling effect" (whose specific mechanism is closely related to a CR's "identifiability threshold" and the matching between PVs and CR rules)—collectively reveal the unique status of "Pure Nothingness" in the cosmic tableau of *Relatedness Theory*. It is not a "background" that can be ignored, but, along with "manifested existence," constitutes the two indispensable, dynamically complementary relative aspects of "Pure Being" as the ontological foundation, and its "veiling effect" profoundly

influences our understanding of cosmic structure, causality, and evolution.

9.3 Manifestation of the "Veiling Effect of Pure Nothingness" in the Hierarchical Structure of Relatedness Theory—Progressive "Relative Domains of Unknowing" and "Unmanifested Potentiality Domains" from CRO to SRO (Dynamically Demarcated by CR's "Identifiability Threshold")

The "veiling effect of Pure Nothingness" is not a singular, simple mechanism acting upon the cosmos as a whole. Rather, it manifests layer by layer with the progressive concretization of the hierarchical structure of "Commonality References (CRs)" in *Relatedness Theory* (i.e., a core CRO defines a "Relatedness System, RS"; within the RS, "Relatedness Levels, RLs" defined by SROs are further differentiated; and the RS itself may be encompassed by a broader ARO). At each level, a specific CR (and its inherent "identifiability threshold"), while "manifesting" a portion of "Pure Being" potentiality, necessarily also "veils" a broader expanse of "Pure Nothingness" relative to that CR .

9.3.1 The First, Macroscopic "Veiling" of "Pure Being" by CRO —Demarcating the RS's "Domain of Possible Existence" and the First Layer of Macroscopic "Pure Nothingness"

When a "Central Commonality Reference (CRO)," through the operation of the "Commonality Self-Activation Mechanism (CSAM)" or subsequent "Global Bidirectional Self-Organization (BSO) mechanism," historically emerges from the infinite potentiality of "Pure Being" and begins to define a "Relatedness System (RS)" with holistic identity and operational logic, this CRO's "core commonality rules" and its formed "Defining Field," along with its inherent, more macroscopic "identifiability threshold," delineate a relatively finite "domain of possible existence" within the infinite ocean of "Pure Being."

Within this "domain of possible existence," the CRO's rules are dominant. Through its "Defining Field" and "identifiability threshold," it "screens" from the infinite "Primordial Vector (PVs)" potentiality of "Pure Being" those PVs whose "inherent necessary propensities" are compatible with that RS's core commonality rules and whose potential activation intensity or pattern complexity can reach that CRO's "identifiability threshold." These "screened" PVs are "responsively activated" under BSO drive and "responsively woven" into the specific

"Dependency Path (DPs)" network constituting the basis of "Relational Reality" within that RS.

However, in this process, that infinite "Pure Being" potentiality—either whose "inherent necessary propensity" fails to form an effective "structural intersection" or "commonality rule resonance" with that CRO's core commonality rules in the "possibility space" of "Pure Being" (i.e., fundamentally incompatible), or which, despite potential relational relevance, has an activation intensity/pattern complexity below that CRO's "identifiability threshold" (i.e., "signal too weak" or "pattern insufficiently stable and clear" to be stably organized by that CRO)—constitutes the first and vastest layer of "Pure Nothingness" background relative to this specific RS and its CRO. This macroscopic "Pure Nothingness" veils the vast majority of "Pure Being" possibilities that this RS, under the definition of its current CRO , cannot incorporate into its organizational framework or establish effective Dependency Paths with. It is the emergence and definition by the CRO that first divides infinite "Pure Being" into a finite, activated RS region and an ocean of "Pure Nothingness" veiled by this first-order "veiling," relative to this RS.

When we recognize a macroscopic, holistic "thing," such as an ecosystem, a social organization, or even ourselves as a whole ("I"), we often identify it at this CRO level as a "Relatedness System (RS)." The holistic characteristics, boundaries, and core operational logic of this RS are defined by its dominant CRO (and its inherent macroscopic "identifiability threshold"). At this point, "Pure Nothingness," relative to this RS's CRO , veils all infinite possibilities that do not conform to this RS's core commonality, or do not meet its "visibility" standard, or are outside the effective range of its "definitional power." This CRO also provides the first-layer macroscopic context and constraints for the further differentiation of more specific "Relatedness Levels (RLs)" and "Relative Entities (REs)" within this RS, while also demarcating the subset of "Pure Being," already "pre-screened" by its CRO , from which these internal structures can initially draw potentiality.

9.3.2 The Second, Local "Veiling" of the "CRO-Initially-Shaped DPs Network" by SRO —Demarcating an RL's "Domain of Possible Manifestation" and the Second Layer of Local "Pure Nothingness"

Within a "Relatedness System (RS)" founded and governed by a core CRO, when one (or more) "Specific Commonality Reference(s)

(SRO)" emerges and defines one (or more) "Relatedness Level(s) (RL)," this SRO's "commonality rules" (i.e., its RL's "projection rules") and its inherent, more specific "identifiability threshold" conduct a second, more concrete "veiling" and "projection" upon the DPs network (the direct "precursor" of REs) within its RL's scope, which has already been initially "shaped" and "screened" by its encompassing RS's core CRO (and its macroscopic "identifiability threshold").

The SRO's "projection rules" and its "identifiability threshold" act like a finer "filter" or "developing pattern." It acts upon the DPs network within its RL's scope, "projecting" or "manifesting" those specific patterns from these already "CRO-screened" DPs network dynamic modes that can achieve self-consistency with the SRO's core commonality, form stable configurations, and exhibit identifiable characteristics (i.e., their "manifestation intensity" or "pattern clarity" can reach or exceed that SRO's "identifiability threshold") as "Relative Entities (REs)" perceivable at the phenomenal level of that RL.

In this process, that portion of the (originating from CRO screening) DPs network existing within that RL, whose dynamic patterns are either incompatible with that SRO's "projection rules" (i.e., its "inherent necessary propensity" or relational pattern is fundamentally mismatched with the SRO's core commonality, failing to form an effective "structural intersection" or "commonality rule resonance"), or which, despite potential compatibility, has a "manifestation intensity" or "pattern complexity" below that SRO's "identifiability threshold" (i.e., cannot form a stable projection or be effectively "identified" by its rules within that SRO's "Defining Field"), constitutes the second layer of "Pure Nothingness" relative to this specific SRO and the RL it defines . This local "Pure Nothingness" veils those underlying DPs network activities that cannot be manifested as specific REs at that RL level. It is the "projection" by the SRO that allows a portion of the "CRO-screened DPs network patterns" to "emerge" as REs and constitute that RL's "phenomenal content," while the remainder (relative to that SRO and its "identifiability threshold") continues to be "veiled" beneath the phenomenal level of that RL, becoming its local "unmanifested potentiality domain."

9.3.3 The Manifestation of an RE Itself is a Form of "Veiling" and "Nullification" of Underlying Complexity (Achieved by SRO's "Projection Rules" and "Identifiability Threshold")

Even if a "Relative Entity (RE)" is successfully "projected" and "manifested" in its encompassing "Relatedness Level (RL)" by its SRO , it, as a "relational pattern" identifiable at the phenomenal level with a relatively stable form and specific attributes, is itself a highly generalized, simplified, and unavoidably "information-losing" presentation of its "precursor" (i.e., the more complex dynamic configuration or activity pattern of the "Dependency Path (DPs)" network, initially shaped by the CRO and acted upon by the SRO's "projection rules" and "identifiability threshold" before manifestation).

An RE can be "identified" and "grasped" by us (or any cognitive system) precisely because the "projection rules" of the SRO defining it and its corresponding "identifiability threshold" have already "ignored," "averaged out," or "deemed invisible" a large amount of detail and dynamics within its "precursor" DPs network that are "irrelevant," "too complex," or "signal too weak" for forming a stably identifiable pattern at that RL level. The identifiability and relative stability of an RE are obtained at the cost of "veiling" the deeper, potentially extremely complex and fluid details of its "precursor." The RE we experience is merely an "effective approximation," a "usable interface," or an "information abstract" of the richer underlying "Relational Reality" under the "projection" of a specific hierarchical CR .

Therefore, any manifestation of an RE is necessarily accompanied by a "nullification" of the vast majority of its "precursor's" complexity—that is, those underlying DPs network characteristics not "captured" and "presented" by the current SRO's "projection rules" and "identifiability threshold," relative to this manifested RE, fall into the category of "Pure Nothingness," becoming the "veiled" background. This reflects the necessary information compression and abstraction process from infinitely complex underlying reality to finite, perceivable phenomena.

This progressive "veiling effect of Pure Nothingness"—from the macroscopic screening and veiling of "Pure Being" by the CRO , to the local projection and veiling of its RL's internal DPs network by the SRO , and finally to the simplification and veiling of underlying complexity by RE manifestation itself (achieved by SRO's "projection rules" and "identifiability threshold")—demonstrates layer by layer how it operates within the hierarchical cosmic tableau of *Relatedness Theory*. It profoundly reveals that any manifested "existence" is a finite fragment "cut out" and "presented" from infinite possibilities under multiple

references and filtrations (achieved by the "identifiability thresholds" of various hierarchical CRs), eternally accompanied by a vaster "domain of unknowing" and "unmanifested potentiality domain" represented by "Pure Nothingness."

9.4 The Foundational Influence of the "Veiling Effect of Pure Nothingness" on Relatedness Theory's "Dynamic View of Causality"

The "veiling effect of Pure Nothingness"—that any finite "Commonality Reference (CR)" (and the "Relatedness System, RS" or "Relatedness Level, RL" it defines) necessarily places the infinite "Pure Being" potentiality it cannot "define" or "project" into its relative "Pure Nothingness" background—is not merely an ontological structural consequence. It more fundamentally shapes *Relatedness Theory's* conception of causality, necessarily leading it towards a profound, dynamic, highly relative, and incompletely deterministic "dynamic view of causality."

9.4.1 Potential "Causes" Veiled by "Pure Nothingness" Far Outnumber Identifiable "Causes"

Because "Pure Nothingness" veils the vast majority of potential "Primordial Vectors (PVs)" and the "Dependency Path (DPs)" networks they might form, for any "Relative Entity (RE)" identified within a specific CR framework (which can be considered a "result" or "phenomenon"), the influencing factors actually acting upon its generating "precursor" (i.e., the DPs network pattern, screened by its encompassing RS's CRO and projected by its RL's SRO, that constitutes the RE) necessarily far exceed those "causes" (typically other REs or observable DPs activities) that are also identifiable and denotable within that CR framework. The "causal chains" we can identify and attribute are merely a small fraction of traceable, relatively stable influence patterns "salvaged" and "highlighted" by the current CR's "projection rules" from the infinitely complex underlying DPs network dynamics veiled by "Pure Nothingness." The vast majority of potential, diffuse, or CR-rule-incompatible relations and influences are hidden behind the curtain of "Pure Nothingness," constituting a huge "unknown background" or "ocean of hidden variables" for our causal narratives.

9.4.2 CR-Dependence of "Causal Manifestation" and Incomplete Determinacy Caused by "Veiling by Pure Nothingness"

The way our observed "causal relations"—for instance, a certain state change in RE_A seemingly "causing" a certain state change in RE_B—are "manifested" and "explained" at the phenomenal level, their intensity of action, probability of occurrence, and even whether such a

causal link is considered to "exist," profoundly depend on the "projection rules" and "commonality standards" of the SRO and higher-order CRO that define these REs (and the DPs connecting them). More importantly, because "Pure Nothingness" veils the full complex details of interactions between the "precursors" of these REs (i.e., more fundamental DPs network patterns) and all potential influence paths, we can essentially never be completely certain of all the underlying mechanisms and all decisive factors leading to a specific phenomenal-level "causal manifestation." Any causal model we can construct is always an approximate description of the regularities in the visible part, based on some degree of "ignoring" or "averaging out" the portion veiled by "Pure Nothingness." This ontological-level informational incompleteness brought by "veiling by Pure Nothingness" is one of the fundamental reasons why our understanding and prediction of specific causal processes possess an intrinsic, ineliminable "uncertainty" or "probabilistic nature."

9.4.3 Perturbations from "Pure Nothingness," the Possibility of Novel Causal Emergence, and Potential Impacts on CR Reconstruction

Potentiality veiled by "Pure Nothingness" is not entirely inert or absolutely isolated from the manifested world. It (as the eternal random fluctuations of the "Pure Being" background, or those DPs network activities not fully "tamed" and organized by the current CR) may continuously, in unpredictable ways, "permeate" or "perturb" manifested RSs, RLs, or REs. This perturbation from "Pure Nothingness" may manifest as:

Introducing new phenomena that appear "causeless" or "anomalous" within the current CR framework: For example, a system suddenly exhibits behavior inexplicable by its existing rules, or an RE's state changes in a way untraceable to known "causal chains." These "anomalies" might precisely be the result of PV potentialities or DPs connections previously veiled by "Pure Nothingness" and unactivated, being accidentally "ignited" under specific conditions and producing observable effects.

Gradually eroding or challenging the stability of existing CRs: If perturbations from "Pure Nothingness" continuously accumulate and increasingly conflict with the "commonality rules" of an existing CR, it may accelerate the intensification of the "Existence-Evolution Paradox

(EEP)" faced by that CR, eventually even triggering its destabilization and reconstruction (i.e., a "transition node" on the EEA).

Providing a source of novelty in CR reconstruction: When an old CR collapses and the system enters a chaotic exploratory period, the vast ocean of potentiality represented by "Pure Nothingness," unbound by old rules, becomes a rich "seedbed of possibilities" for the emergence of a new CR'. The reason a new CR' might bring an entirely new "existence paradigm" and "causal rules" is precisely because it might integrate and activate certain potentialities previously veiled by the old CR's "Pure Nothingness." Therefore, "perturbation from Pure Nothingness" and "potentiality release" are important mechanisms for the generation of novelty in cosmic evolution and the realization of the "Principle of Relative Causal Restructuring."

9.4.4 Fundamental Limits of Prediction Arising from the Inexhaustibility and Universal Veiling of "Pure Nothingness"

Due to the existence of "Pure Nothingness" and its universal "veiling effect" on any finite CR (and the RS/RL it defines), our prediction of the long-term evolutionary trajectory and precise causal relations of any finite RS is, at the ontological level, impossible to achieve completely.

Inexhaustible unknown factors: "Pure Nothingness" represents, relative to our current cognitive framework (defined by our cognitive CRs), inexhaustible potential variables and interactions. We can never grasp all the initial conditions and all potential external influencing factors of an open system (any RS is open), because most of these factors are "hidden" within the "Pure Nothingness" relative to that RS.

"Veiling" leads to model incompleteness: Any causal or dynamic model of an RS we establish is necessarily formed after "ignoring" or "simplifying" its complex interaction with the "Pure Nothingness" background and the infinite potentiality within "Pure Nothingness." This model incompleteness is fundamental, not merely technical. Therefore, even if *Relatedness Theory* attempts to reveal a "formula of existence" for the cosmos, this revelation is not aimed at achieving a deterministic, precise prediction of the future, but rather at understanding the universal mechanisms, principles, and constraints that drive existential generation, evolution, and reconstruction. In the face of this eternal sea of unknowing and possibility that is "Pure Nothingness," any specific prediction must maintain its relativity and probabilistic nature.

9.5 The Role of "Pure Nothingness" in the Core Dynamics of Relatedness Theory (EEP/EEA/BSO)

"Pure Nothingness," as the relative unmanifested state of "Pure Being" and the dynamic background for manifested existence, plays crucial, yet strictly non-teleological, background, resource, or pressure-exerting roles in the core dynamic mechanisms of *Relatedness Theory*—the Existence-Evolution Paradox (EEP), the Existence-Evolution Axis (EEA), and Global Bidirectional Self-Organization (BSO). It does not "actively" do anything, but its state of existence and characteristics profoundly influence the unfolding of these dynamic processes.

9.5.1 As One of the Background Sources of "Evolutionary Rate/Tension (v)" in EEP

The internal "evolutionary rate/tension (v)" of a "Relatedness System (RS)" is one of the fundamental impetuses driving its evolution. And "Pure Nothingness," representing infinite potentiality and its intrinsic fluctuations, through the ontological factor of "Infinite Potentiality Pressure (IPP)," constitutes a continuous, background perturbation and "possibility erosion" for the manifested RS.

This IPP is not a pressure "intentionally" exerted by "Pure Nothingness." Rather, it is an ontological tension that a finite, structured RS inevitably faces by existing within the background of infinite, possibility-filled "Pure Being" (its unmanifested part being "Pure Nothingness"). Manifested structures need to continuously "resist" the tendency to be "diluted" or "disintegrated" by infinite potentiality.

Random fluctuations from "Pure Nothingness" (originating from the intrinsic uncertainty of "Pure Being") may also continuously "inject" new informational or energetic (in a broad sense) perturbations, unanticipated by the current RS's CR, forcing the RS to respond or adjust. These all constitute an important source of an RS's internal v, originating from its fundamental relationship with the "Pure Nothingness" background.

9.5.2 As the "Seedbed of Possibilities" for New CR Emergence at EEA "Transition Nodes"

When the core "Commonality Reference (CR)" of an RS collapses due to the intensification of the "Existence-Evolution Paradox (EEP)," and the system enters a chaotic exploratory period of a "transition node" on

its "Existence-Evolution Axis (EEA)," the old organizational principles disintegrate, and the RS largely reverts to a state closer to its relative "Pure Nothingness" (i.e., Pure Being potentiality unorganized by specific rules, relative to the old CR).

At this stage, "Pure Nothingness" provides an extremely rich "possibility space" or "raw material reservoir," unbound by old CR rules, for the (possible) reactivation of the "Commonality Self-Activation Mechanism (CSAM)" and the probabilistic exploration of new CRs. New structures, new rules, and new "existence paradigms" can be "attempted" and "emerge" therefrom.

"Pure Nothingness" here does not "actively gestate" new CRs. Rather, its represented "unspecifiedness" and "infinite possibility" provide the necessary conditions and ontological basis for the system, after the old order disintegrates, to spontaneously and non-deterministically explore and condense a new CR' capable of temporarily alleviating the EEP contradiction.

9.5.3 As the "External Potentiality Environment" and "Information/Resource Exchange Interface" for BSO Mechanism Operation

A "Relatedness System (RS)," as an open system, its operation and evolution are inseparable from interaction with the external environment, an interaction regulated by the "Global Bidirectional Self-Organization (BSO) mechanism." And relative to any finite RS, its most fundamental and vastest "external environment" is its relative "Pure Nothingness" (i.e., the infinite potentiality in "Pure Being" not incorporated and organized by its core CRO).

An RS, through its dynamic, permeable boundary (defined by its core CRO's range of "definitional power"), engages in continuous (generalized) exchanges of "matter, energy, information" with this "Pure Nothingness" potentiality background. For example, an RS might "responsively activate" new "Primordial Vectors (PVs)" from "Pure Nothingness" to construct or repair its internal "Dependency Path (DPs)" network; it might also "discharge" or "dissipate" certain "entropy," "conflicts," or "no longer compatible patterns" generated internally due to EEP operation into the "Pure Nothingness" background in some form.

This continuous interaction with "Pure Nothingness" is a key condition for the BSO mechanism to operate between the system and its environment, and for the RS to exhibit adaptive adjustments, structural

evolution, and the absorption of "novelty" from its environment. "Pure Nothingness" provides infinite "possibility resources" and a "dynamic background" for BSO's operation.

Through this analysis, we can see that although "Pure Nothingness" does not play any "active" or "purposeful" role in the dynamic tableau of *Relatedness Theory*, as the unmanifested state of "Pure Being," its potentiality, dynamism, and profound "veiling effect" make it an indispensable, fundamental background condition and source of possibility for manifested existence to be defined, structures to be generated, causality to exhibit relativity, and the entire cosmos to continuously evolve driven by internal contradictions.

9.6 Fundamental Differences Between "Pure Nothingness" and the Traditional Concept of "Void" (Brief Comparison)

The concept of "Pure Nothingness (PN)" in *Relatedness Theory*, although literally containing "nothingness," its connotation is fundamentally, even diametrically, different from "Void" or "Absolute Nothingness" as commonly understood in traditional philosophy or everyday language. Clearly discerning this difference is crucial for accurately grasping the ontological foundation of *Relatedness Theory* and its unique cosmic generation and evolutionary tableau.

To highlight this difference, we can conduct a brief comparison along the following key characteristic dimensions:

Characteristic Dimension	Traditional Logic: Void	*Relatedness Theory* Logic: Pure Nothingness
Ontological Status	Usually conceived as an absolute "nothing," the complete antithesis or utter absence of "existence," sometimes even regarded as a primordial state prior to "existence."	Strictly, it is the unmanifested potential state of "Pure Being," relative to a specific "Commonality Reference (CR)." It is not an independent ontological entity but a relative description of "Pure Being," dependent on the CR context. It and "manifested existence" together constitute the two relative aspects of "Pure Being."

Core Nature	Empty of everything, absolute vacuity, without any specification, potentiality, or dynamism; usually understood as static, homogeneous, and absolute.	Full of infinite potentialities, i.e., the potentiality of "Primordial Vectors (PVs)" within "Pure Being" not currently activated and organized by the CR. It is intrinsically dynamic (originating from the eternal fluctuations of "Pure Being"); its scope and content are relative (entirely dependent on the CR as reference).
Relationship with "Existence/Manifestation"	Absolutely mutually exclusive with "existence," an either/or situation. Traditionally, how "existence" arises from "absolute nothingness" ("creation ex nihilo") is a huge philosophical problem or logical rupture.	Dynamically, mutually transformative, and interdependent with "manifested existence" defined by a CR. Potentiality can be activated from "Pure Nothingness" and "manifested" as existence; manifested structures can also disintegrate due to CR destabilization, their constituent potentiality returning to a state of "Pure Nothingness." Both together constitute the entirety of "Pure Being."
Role in Cosmic Genesis and Evolution	Often considered the logical starting point of cosmic genesis (if "creation ex nihilo" is accepted), or the state of "heat death" to which existence might eventually return, or it plays no active constructive role at all.	As the "reservoir of possibilities" for continuous cosmic innovation and novelty emergence; as the referential background for manifested structures to define their finite boundaries; as the "external potentiality environment" for "Relatedness Systems (RSs)" to engage in open interaction and draw new potentiality therefrom; through its "Infinite Potentiality

Pressure (IPP)" and intrinsic fl uctuations, it indirectly and n on-teleologically becomes on e of the background factors in fluencing an RS's evolutionary rate/tension (v) and the opera tion of the "Existence-Evolutio n Paradox (EEP)"; and also as the "seedbed of possibilities" from which new structures ca n be explored and emerge wh en a CR is reconstructed on th e "Existence-Evolution Axis (E EA)."

Through this comparison, we can clearly see that the introduction of the "Pure Nothingness" concept in *Relatedness Theory* is not primarily aimed at re-discussing the traditional philosophical problems of "void." Instead, its core purposes are to:

Avoid the logical predicament of traditional "creation ex nihilo": By defining "Pure Nothingness" as the unmanifested state of "Pure Being" which is full of potentiality, the emergence of structure (e.g., via CSAM) no longer leaps forth from "absolute emptiness," but rather probabilistically "condenses" from an infinitely rich "ocean of possibilities" through intrinsic mechanisms (fluctuations, commonality rules, self-organization). This provides an intrinsic, more logically self-consistent explanatory basis for cosmic genesis.

Provide ontological assurance for continuous cosmic innovation and non-teleological evolution: The infinite unmanifested potentiality represented by "Pure Nothingness" means that the creativity and possibilities of the cosmos are never exhausted. New structures, new rules, new "existence paradigms" can always potentially emerge from this "sea of potentiality" without resorting to any external designer or presupposed purpose. This is highly consistent with the strictly non-teleological stance of *Relatedness Theory*.

Therefore, "Pure Nothingness" in *Relatedness Theory* is far from a negative, insignificant background. It is an indispensable core concept with profound constructive (albeit passive and background-like)

significance within its entire ontological and dynamic framework. It is a thorough, relational, and dynamic reconstruction of the ancient philosophical category of "nothingness."

9.7 Section Summary: "Pure Nothingness"—A Relative Existence as the Demarcation of Manifestation, the Ocean of Potentiality, and the Veil of Causal Cognition

This chapter has systematically and profoundly elucidated the core concept of "Pure Nothingness (PN)" in *Relatedness Theory*. We have clarified that "Pure Nothingness" is by no means "absolute nothingness" in the traditional philosophical sense, but a key constituent within *Relatedness Theory's* unique ontological framework, its existence and meaning possessing profound relativity, potentiality, dynamism, and, crucially, a "veiling effect."

Core Definition and Characteristics: "Pure Nothingness" is precisely defined as: the unmanifested potential state of "Pure Being" (the sole, infinitely rich potentiality field of the cosmos), relative to a specific "Commonality Reference (CR)." Its fundamental characteristics are:

Absolute CR-dependence: Without a CR as reference, to speak of "Pure Nothingness" is meaningless.

Infinite potentiality: It is filled with the possibility of forming all new structures, new orders, new meanings; it is the ultimate "reservoir of possibilities" for all future cosmic emergence.

Eternal dynamism: It exists in a continuous, interpenetrating transformative process with "manifested existence" defined by CRs, and is itself "unrestful" due to the intrinsic fluctuations of "Pure Being."

Profound "veiling effect": Because the "definitional power" and "projection rules" of any CR are finite, "Pure Nothingness," relative to any specific, finite CR, represents the infinite "Pure Being" potentiality "veiled" by that CR, unable to be incorporated into its current organizational framework or manifested as identifiable phenomena.

Manifestation of the "Veiling Effect of Pure Nothingness" in Hierarchical Structures and its Foundational Influence on the "Dynamic View of Causality": We delved into how this "veiling effect" operates layer by layer, starting from the CRO's first macroscopic "screening" of "Pure Being," progressively through the SRO's local "projection" of the "CRO-screened DPs network," down to the "simplified presentation" of underlying complexity by RE manifestation itself. This universal, multi-level "veiling effect of Pure Nothingness" means that the "causes" we can identify are far fewer than potential "causes"; our observed "causal manifestations" profoundly depend on CR "projection rules" and possess incomplete determinacy; perturbations from "Pure Nothingness" may

give rise to novel causal emergence or even CR reconstruction; and our long-term prediction of any finite RS's evolution and precise causal relations is ontologically impossible to achieve completely. This collectively lays the foundation for *Relatedness Theory's* unique "dynamic view of causality," which profoundly reflects cosmic complexity and cognitive limitations.

Non-teleological Role in *Relatedness Theory's* Core Dynamics: Although "Pure Nothingness" possesses no active intention or purpose, as the unmanifested state of "Pure Being," it constitutes a continuous background perturbation to manifested RSs via "Infinite Potentiality Pressure (IPP)" (becoming a source of v in EEP); at EEA "transition nodes," it provides a "chaotic seedbed" full of possibilities for new CR emergence; and, as the "external potentiality environment" and "information/resource exchange interface" for RS open interaction, it is an important condition for the BSO mechanism to operate.

Fundamental Difference from the Traditional Concept of "Void": These characteristics of "Pure Nothingness" place it in stark contrast to the negative, empty "absolute nothingness" concept of traditional philosophy. *Relatedness Theory's* "Pure Nothingness," by relativizing, potentializing, and dynamizing "nothingness," avoids the logical predicament of "creation ex nihilo" and provides an intrinsic, logically self-consistent explanatory basis for continuous cosmic innovation and non-teleological evolution.

In summary, "Pure Nothingness (PN)" is an indispensable core concept with multiple profound connotations in the cosmic tableau of *Relatedness Theory*. As the logical boundary of "manifested existence," as the dynamic ocean of infinite potentiality, and as the unavoidable "veiling curtain" of our causal cognition, it profoundly embodies the relational, relative, dynamic, and processual essence of *Relatedness Theory*. Correctly understanding this unique, strictly non-teleological relative existence of "Pure Nothingness" and its role is of paramount importance for comprehensively grasping how *Relatedness Theory*, starting from the sole cornerstone of "Pure Being," constructs a logically self-consistent theoretical system capable of both explaining the origin of cosmic order and accommodating its infinite complexity and continuous innovation. It is key to our understanding of how "Pure Being" is both "everything" and "everything that has not yet become any specific thing."

Chapter 10: Evolutionary Rate (v)—The Ontological Roots of the Intrinsic Transformative Propensity of a "Relatedness System (RS)"

10.0 Introduction: The Dynamic Nature of a "Relatedness System (RS)"—The Universality and Inevitability of its Intrinsic Transformative Propensity (v)

In the theoretical construction journey of *Relatedness Theory*, we have already departed from the sole ontological cornerstone, "Pure Being," and explored how "Primordial Vectors (PVs)," as potentiality units carrying "relational propensities," spontaneously give rise to the first stable structural node—the "Commonality Reference (CR)"—through the "Commonality Self-Activation Mechanism (CSAM)." We further elucidated the hierarchical nature of CRs (with the "Central Commonality Reference, CRO" at the core, internally differentiable into "Specific Commonality References, SROs" defining "Relatedness Levels, RLs"), and how, under the influence of a CR's "Defining Field," the "Dependency Path (DPs)" network is "responsively activated" and "responsively woven," thereby constituting the foundational fabric of "Relational Reality." Furthermore, we discussed the "Relatedness System (RS)," defined by a CRO and manifested from "Pure Being" as a finite structured existence, as the basic unit for analyzing the phenomenal world in *Relatedness Theory*.

A core question then emerges: why does any RS, specified by a finite CR, not fall into eternal stasis or simple cyclical repetition? What makes it necessarily exhibit an intrinsic "transformative propensity" to deviate from its current stable state and explore new patterns? What is the most fundamental source of this transformative propensity, universally present in all RSs? What are its core properties? How does *Relatedness Theory* explain this from first principles?

To capture and describe this overall intrinsic trend that impels an RS to undergo state transitions, structural evolution, and paradigm shifts, *Relatedness Theory* introduces the core dynamic concept of "evolutionary rate (v)." v is not simply velocity or acceleration in traditional physics, nor is it akin to the "selection pressure" in some biological evolutionary theories that is endowed with a specific directionality (such as "adaptation") (although the latter, in the view of *Relatedness Theory*,

might be a complex manifestation of v under the interaction of a specific biological RS and a particular environmental ARO). At the philosophical principled level of *Relatedness Theory*, v is a profound ontological parameter. It refers to the aggregate, intrinsic "transformative propensity" or "sum of structural tensions" necessarily exhibited by an RS due to its fundamental ontological condition as a "finite manifestation" confronting "infinite potentiality," the "intrinsic incompleteness" of its defining rules facing the "challenge of complex reality," the "continuous fluidity" of its constituent relations confronting the "need to maintain stability," and the eternal "co-evolutionary pressure" between it as an "open system" and its "dynamic environment." Its changes do not point to any presupposed goal.

This chapter, starting from the basic principles of *Relatedness Theory*, will profoundly and meticulously elucidate the philosophical definition and core properties of "evolutionary rate (v)," and systematically reveal the four fundamental ontological sources acting upon any RS, thereby laying a solid theoretical foundation for the subsequent understanding of the "Existence-Evolution Paradox (EEP).

10.1 Philosophical Demarcation, Core Properties, and Overview of Ontological Roots of "Evolutionary Rate (v)"

10.1.1 Precise Philosophical Definition and Core Properties of "Evolutionary Rate (v)"

"Evolutionary rate (v)," as an overall attribute of a "Relatedness System (RS)" (defined by its core "Central Commonality Reference, CRO" and the rule system it embodies), refers to an aggregate, intrinsic intensity of structural tension or sum of transformative propensities. This propensity is inherent within the RS, originating from its fundamental ontological condition as a finite structure manifested from infinite "Pure Being," and from the continuous interaction and tension between itself and its own constitution (the "Dependency Path, DPs" network and "Relative Entity, REs" patterns) and its external environment (other RSs, higher-order "Encompassing/Inclusive Commonality References, AROs," and its relative "Pure Nothingness" potentiality background). It drives the RS to deviate from the relatively stable operational mode currently defined by its core CRO (which mode is manifested by the behavior of its internal REs and the organizational state of its DPs network).

Its fundamental properties include:

Intrinsic to the RS: The root cause of v lies primarily in the RS's own constitution, the intrinsic characteristics of the rules embodied by its core CR (e.g., "Incompleteness of Foundation, IoF"), the "Fluidity of Internal Relations (FIR)" of its DPs network, its fundamental interface relationship with "Pure Being/Pure Nothingness" ("Infinite Potentiality Pressure, IPP"), and its necessary responsive manifestation as an open system interacting with its environment ("Open System Adaptation, OSA"), rather than merely a simple, passive reaction to external environmental stimuli.

Aggregate/Holistic for the RS: v is not uniquely determined by any single factor or process within the RS. Rather, it is the comprehensive manifestation and overall effect, under the operation of its "Global Bidirectional Self-Organization (BSO) mechanism," of all levels and all sources (IPP, IoF, FIR, OSA) of "transformative propensity" or "structural tension" for the RS as a whole.

Propensity for Transformation / Intensity of Structural Tension: v can manifest as a measure of the "rate of possibility" or "intensity of the propensity for occurrence" of identifiable structural changes within an

RS per unit of "Existence-Evolution Axis time" (if definable, referring to the "structural time" marked by the sequence of events where its core CR rule system undergoes fundamental "displacement") (e.g., adjustments to the rules embodied by its core CRO or internal key SROs, significant changes in DPs network topology, the emergence of new RE types, or the demise of old REs). It can also be more profoundly understood as the intensity of accumulated "structural instability," "organizational pressure" within the RS driving these changes, or, under BSO dynamics, the overall strength of the system's tendency to deviate from the relatively stable organizational mode and operational state currently defined by its core CR.

Passive Responsiveness of the RS: The generation and change of v are a passive, yet (under the BSO mechanism) necessary, responsive manifestation of the RS to its profound ontological conditions (such as its being a finite existence, an open system, and the intrinsic incompleteness of its core CR rules) and its complex internal and external relational network (interactions with other RSs/AROs, interface effects with relative "Pure Nothingness" potentiality). An RS does not possess some intrinsic "will" to choose change or actively set the magnitude of its v; rather, its "existential condition" itself causes it to necessarily exhibit this transformative propensity.

Non-preset directionality of change: The specific direction and ultimate outcome of changes occurring in an RS driven by v are fraught with contingency and path dependence. These changes emerge probabilistically and are explored through the "Global Bidirectional Self-Organization (BSO) mechanism," in a complex interplay (i.e., the "Existence-Evolution Paradox, EEP") with the need to maintain the stability of its current core CR (characterized by that CR's "period of definitional power, T_CR" and its corresponding generalized "maintenance cost, h(T)"), and under the constraint of its finite "existence-bearing capacity, C_max." They do not follow a predetermined "developmental blueprint" or tend towards a specific "optimal state."

10.1.2 Overview of the Four Ontological Roots of v

"Evolutionary rate (v)," as the overall manifestation of a "Relatedness System's (RS)" intrinsic transformative propensity, its generation is neither singular nor accidental. It originates from four fundamental sources of tension that any finite RS necessarily faces in its ontological condition, as revealed by the basic principles of *Relatedness*

Theory. These sources are interrelated and act in concert, making it impossible for any RS to remain eternally static, instead necessarily exhibiting continuous change and evolutionary trends. These four ontological roots are:

(I) Infinite Potentiality Pressure (IPP): This refers to the ontological-level perturbation and permeation of "possibilities" not encompassed by the current RS structure, which any finite RS continuously endures from the interface it necessarily forms with its relative, infinite "Pure Nothingness" (unmanifested potentiality, also originating from "Pure Being"), by virtue of its manifestation from the infinite potentiality background of "Pure Being." This pressure originates from the infinity and eternal intrinsic fluctuations of "Pure Being" and is the eternal interface tension between finite existence and infinite potentiality.

(II) Incompleteness of Foundation (IoF): This refers to the rule system of the core "Commonality Reference (CR)" (including its top-level CRO and internal SROs) defining an RS. As a finite abstraction and local specification of the infinite potentiality of "Pure Being," it necessarily possesses logical limitations, applicability boundaries, and potential internal inconsistencies or rule conflicts. This incompleteness intrinsically generates structural tension within the RS.

(III) Fluidity of Internal Relations (FIR): This refers to the state of the "Dependency Path (DPs)" network constituting the "Relational Reality" basis of an RS, and the "Relative Entities (REs)" manifested as "projection patterns" upon it. Even during periods when the RS's core CR rules are relatively stable, these are not absolutely static but exhibit continuous, microscopic-level dynamic changes and uncertainty due to their probabilistic origin and maintenance mechanisms, as well as continuous interaction with the faint fluctuations of the "Pure Being" background. This intrinsic "fluidity," together with the RS's effort to maintain overall organization ("existence maintenance"), constitutes a tension.

(IV) Open System Adaptation (OSA): This refers to the structural adjustment needs and relational reshaping pressures generated by the necessary continuous interaction and co-evolution between any RS as an open system and its external dynamic environment (including other RSs, higher-order "Encompassing/Inclusive Commonality References, AROs," and its relative "Pure Nothingness" potentiality background).

These four ontological roots are the most fundamental, ontological-level reasons for the generation of "evolutionary rate (v)," originating from the basic principles of *Relatedness Theory*. They act in concert, causing any RS to necessarily exhibit v. In the following subsections, we will provide a detailed philosophical elucidation of each root.

10.2 Ontological Root (I) of v: Infinite Potentiality Pressure (IPP)—Detailed Philosophical Elucidation of the Interface Tension and Possibility Perturbations Between a Finite RS and its Relative "Pure Nothingness" Background (Infinite "Pure Being" Potentiality)

The first and most fundamental ontological source of the "evolutionary rate (v)," as the overall manifestation of a "Relatedness System's (RS)" intrinsic transformative propensity, is "Infinite Potentiality Pressure (IPP)." IPP originates from a fundamental ontological condition that any finite RS necessarily faces: as a finite structure manifested from the infinite potentiality of "Pure Being," its boundary (defined by the "range of definitional power" and "identifiability threshold" of its core "Commonality Reference, CRO") necessarily engages in continuous interface effects with the infinite "Pure Nothingness (PN)" relative to it (i.e., the potentiality in "Pure Being" not activated and organized by that RS's CRO), which also originates from "Pure Being," and endures unceasing possibility perturbations from this infinite background.

10.2.1 Tracing Basic Principles and Mechanistic Elucidation:

1. The infinity and eternal intrinsic fluctuations of "Pure Being" are the logical starting point: According to the ontological cornerstone of *Relatedness Theory*, the sole, absolute foundation of the cosmos is "Pure Being." "Pure Being" is an infinitely rich, completely undifferentiated totality of potentiality. Its infinity makes it impossible to maintain absolute stasis; instead, it intrinsically and ontologically contains eternal, minute, non-directional random fluctuations. These fluctuations are a direct manifestation of "Pure Being's" dynamic nature, the most primordial and universal "source of possibility" for any "change" to occur.

2. Finite manifestation of RS and the formation of a relative "Pure Nothingness" interface: When a "Relatedness System (RS)" is defined and organized by its core "Commonality Reference (CRO)" (this CRO itself being a stable relational structural pattern embodying specific "commonality rules," emerging from "Pure Being" via the "Commonality Self-Activation Mechanism, CSAM"), this RS is necessarily a finite, structured region specified by particular CR rules. Relative to this finite RS and its CRO, all infinite potentiality within "Pure Being" that has not been activated, organized, and incorporated into the current structure of

this RS constitutes that RS's "Pure Nothingness (PN)" background. This "Pure Nothingness" is not vacuous but is a dynamic interface, filled with "unrealized possibilities" relative to the current RS, and equally subject to the intrinsic fluctuations of "Pure Being." The boundary of an RS, defined by its CRO's "range of definitional power" and "identifiability threshold," is a dynamic, permeable zone interacting with this "Pure Nothingness" background.

3. Generation mechanism of IPP—"potentiality perturbations" and "possibility permeation" at the interface: Any finite RS is thus necessarily and continuously exposed to the "impact" of the eternal random fluctuations of its relative "Pure Nothingness" background (i.e., infinite "Pure Being" potentiality). These unpredictable fluctuations from "Pure Nothingness" constantly trigger, at the boundary or within the RS, the germination of possibilities for new "Primordial Vector (PVs)" activation or new "Dependency Path (DPs)" connections. These "germinations" are not the result of the RS possessing some intrinsic "will" or "Pure Nothingness" exerting some external "push," but are purely probabilistic manifestations of "Pure Being's" infinite dynamism at the interface of this finite RS structure. These newly germinated PV combinations (potential DPs or REs patterns), their "inherent necessary propensities," or the "potential commonality rules" emerging therefrom, may not be fully compatible with the rules embodied by the RS's existing core CR. Their very existence constitutes a structural, heterogeneous pressure on the RS's existing structure and stability.

4. The "traction" effect of IPP on DPs networks and its indirect influence on the rule system embodied by CR—probabilistic structural adjustment under the BSO mechanism:

Furthermore, if these "possibility paths" (i.e., those newly germinated PV combinations or potential DPs network configurations carrying different "relational propensities") originating from the relative "Pure Nothingness" background and not fully compatible with the RS's existing core CR rules, achieve a stronger "commonality resonance" or "rule attraction" with the rules of some higher-order "Encompassing/Inclusive Commonality Reference (ARO)" external to the RS, or with some "structural demand" within the RS not fully met by the current CR due to "Incompleteness of Foundation (IoF)" (see section 10.3) (where "demand" here refers to a structural imbalance within the RS arising from the incompleteness of its core CR rules or tensions within its DPs network, tending towards some adjustment driven by the

"Global Bidirectional Self-Organization (BSO) mechanism"), then these "possibility paths" may, via the BSO mechanism, exert an indirect, resultant effect from the interaction of multiple possibilities and rules driven by BSO on the RS's existing internal "Dependency Path (DPs)" network (especially those key DPs network patterns constituting its core CRO's dependence and embodying its "existence basis").

This "traction" is not the active exertion of force by an entity, nor does "Pure Nothingness" possess some "intention" to "pull" the RS. It refers to a probabilistic, structural "deviation" or "adjustment trend" exerted on the RS's internal DPs network connection patterns, intensity distribution, or overall topology under the continuous operation of BSO. This occurs because potentiality patterns with different "relational propensities" continuously emerge from the "Pure Nothingness" background, and their varying compatibility with the RS's existing structure, their probabilities of activation and maintenance, and their potential "resonance intensity" with broader relational networks (AROs) or deeper internal structures of the RS (unmet "structural demands") differ.

Since a Commonality Reference (CR) (especially a core CRO) is itself a stable relational structural pattern embodying specific "commonality rules," emerging self-organizedly from the DPs network within the RS it defines via BSO and CSAM (its rules and structure being supported and embodied by the patterns of these DPs networks), when the DPs network constituting its basis undergoes structural deviation or adjustment due to this continuous "traction" effect of "possibility paths" from the relative "Pure Nothingness" background, then the stability of the "commonality rule" system embodied by that CR, its effectiveness as a referential framework, or its relative "position" in the abstract "CR possibility space" (i.e., the expression and scope of application of its core commonality rules) will also necessarily, indirectly, as a result of this BSO-driven overall dynamic adjustment process, be affected and may undergo fundamental transformation (i.e., a "displacement" of the rule system embodied by the CR, corresponding to a "transition node" on the EEA).

10.2.2 Mechanistic Elucidation of IPP's Contribution to an RS's v:

The "Global Bidirectional Self-Organization (BSO) mechanism" of an RS, as the fundamental dynamic process of continuous, all-

encompassing mutual determination and modulation within the system and between the system and its external environment (including its relative "Pure Nothingness" background), its very operation will respond to these heterogeneous pressures and "traction" effects introduced by IPP, which primarily act upon its DPs network. The RS's internal DPs network and the rule system and structural patterns embodied by its core CR will, according to their intrinsic BSO dynamics and (possibly evolving) CR rules, spontaneously (non-teleologically) undergo adjustment and reorganization in an attempt to maintain some degree of organizational integrity and operational coordination under new internal and external conditions (within the constraints of its finite "existence-bearing capacity, C_max" and the continuously expended "maintenance cost, h(T)").

This continuous process of internal structural adjustment and reorganization—triggered by IPP (as the manifestation of "Pure Being's" eternal fluctuations and infinite potentiality at the finite boundary of the RS) and mediated by BSO (as the universal logic of PV interaction), primarily manifesting at the DPs network level and then potentially profoundly influencing the rule system and organizational patterns embodied by its core CR—is the reason why an RS cannot maintain absolute stasis but necessarily exhibits an intrinsic, overall effect tending towards change. The cumulative and comprehensive manifestation of this effect constitutes a fundamental source of the "evolutionary rate (v)." IPP ensures that no RS can be completely isolated from its infinite potentiality background but must, in an eternal "dialogue of possibilities," continuously engage in structural "responses" and evolution via its intrinsic BSO mechanism.

10.3 Ontological Root (II) of v: Incompleteness of Foundation (IoF)—The Intrinsic Logical Limitations and Structural Tensions of the Rule System Embodied by an RS's Core CR (CRO and Internal SROs)

The second profound ontological source of "evolutionary rate (v)" lies in the fact that the "commonality rule" system embodied and solidified by any "Commonality Reference (CR)" defining a "Relatedness System (RS)"—whether it is the macroscopic "Central Commonality Reference (CRO)" defining the entire RS, or a "Specific Commonality Reference (SRO)" defining a particular "Relatedness Level (RL)" within the RS—necessarily possesses "Incompleteness of Foundation (IoF)." This incompleteness stems from the fact that any CR (as a stable relational structural pattern embodying specific rules, emerging from the infinite potentiality of "Pure Being") is merely a finite abstraction and local specification of this infinite potentiality. This essential finitude means it inevitably has intrinsic logical limitations and applicability boundaries. IoF intrinsically generates logical and structural tension within the RS, becoming another important factor driving the RS's transformative propensity, v.

10.3.1 Tracing Basic Principles and Mechanistic Elucidation:

1. The finite abstract nature of the rule system embodied by a CR leads to its incompleteness: The emergence and stability of any Commonality Reference (CR) represent a "selective actualization" and "regularizing abstraction" of the infinite possibilities of "Pure Being." Through its core "commonality rules" and its "definitional power" as a referential framework (along with its inherent "identifiability threshold"), it "carves out" and organizes a finite, specifically ordered "Relatedness System (RS)" or "Relatedness Level (RL)" from infinite potentiality. However, this process of "specification" from infinite to finite necessarily means that the "commonality rule" system established and embodied by the CR can only cover and process specific types of relations, information, and interaction modes within its "domain of definition," and cannot exhaust all potential possibilities or cope with all possible situations.

2. Specific manifestations of IoF: This "Incompleteness of Foundation (IoF)"—the intrinsic limitation of the rule system embodied by a CR—may manifest in various forms in the operation of the RS it defines:

Applicability boundaries and "blind spots" of rules: Any rule embodied by a CR has its effective scope and conditions of application. When an RS's internal state evolves or its interaction with the external environment (other RSs/AROs or relative "Pure Nothingness") exceeds these boundaries, encountering new information patterns or complex interactive relations that its existing CR rules cannot effectively cover, provide clear explanations for, or which cause its "identifiability threshold" to fail, IoF is exposed. This forms "blind spots" or "failure zones" for the CR rules.

Internal logical inconsistency or potential conflicts within the rule system: A complex CR (especially a multi-level CRO that might integrate rules embodied by multiple internal SROs, or an ARO that itself contains multiple complex rule sets) may have potential logical inconsistencies, operational contradictions, or lead to "rule vacuums" (lack of applicable rules) or "rule paradoxes" (different rules giving conflicting guidance) when dealing with certain specific (possibly marginal or novel) situations.

Consequences of incomplete "projection" of "Pure Being" potentiality and its "veiling effect": When a CR's "projection rules" and its "identifiability threshold" manifest underlying "Dependency Path (DPs)" network patterns as identifiable "Relative Entities (REs)," they necessarily "ignore," "average out," or "deem invisible" a large amount of microscopic detail and complex dynamics. This incompleteness of "projection" (originating from the "veiling effect of Pure Nothingness") may result in certain underlying relational information or potential structural instabilities, crucial for the RS's long-term stability or effective operation, not being fully incorporated into the "consideration" of the macroscopic rule system defined by the CR, thereby sowing seeds of potential "uncertainty," "unforeseen behavior," or "systemic risk" in the RS's operation.

10.3.2 Contribution Mechanism of IoF to an RS's v:

"Incompleteness of Foundation (IoF)" is not merely a static defect; through the operation of the "Global Bidirectional Self-Organization (BSO) mechanism," it dynamically transforms into an intrinsic tension driving an RS's transformative propensity, v:

1. IoF triggers the accumulation of "operational deviations" and "structural contradictions" within an RS: When an RS operates according to these CR rules (whether embodied by the core CRO or internal SROs) that contain incompleteness or potential conflicts, its internal "Dependency Path (DPs)" network and the patterning and interaction of "Relative Entities (REs)" will inevitably, due to rule "blind spots," internal conflicts, or incomplete "projection" of underlying complexity, gradually accumulate "operational deviations" (i.e., actual operational results produce unexplainable or incorrigible differences from the ideal expected output of CR rules), "bottlenecks in information transmission," "failure zones of rule applicability," or "structural contradictions" between different RL/SRO rules and between rules and reality (the actual behavior of DPs/REs).

2. BSO responds to intrinsic tension, driving a continuous tendency for internal adjustment and reconstruction: These continuously accumulating "operational deviations" and "structural contradictions," endogenously generated by the "Incompleteness of Foundation (IoF)" of the RS's own core CR rules, transform into a systemic "logical and structural tension" within the RS. This tension makes it impossible for the RS's current state to remain stably and conflict-free for long (i.e., it challenges its core CR's "period of definitional power, T_CR," and may increase its "maintenance cost, h(T)"). The RS's "Global Bidirectional Self-Organization (BSO) mechanism" responds to this intrinsic tension, spontaneously (non-teleologically) generating a continuous dynamic trend towards adjusting its internal DPs network connections and REs states, even mending, extending, or reinterpreting the rules embodied by its core CR (SROs and even CRO), or, when contradictions intensify to a certain degree (possibly approaching its "existence-bearing capacity, C_max"), triggering more fundamental structural reconstruction (i.e., CR "displacement").

This intrinsic adjustment and structural exploration process, driven by IoF and aimed at "seeking a more self-consistent (though, based on finite CR rules, this 'more self-consistent' is always relative and transient, unable to achieve absolute perfection) organizational form and operational rules" within the RS, directly contributes to the RS's overall "evolutionary rate (v)." It profoundly embodies the intrinsic transformative potential and evolutionary demand necessarily exhibited by any ordered structure based on finite rules when facing the eternal challenge of its own definitional limitations and the infinitely complex

potentiality of "Pure Being" (partially manifested as insufficiently specified "Relational Reality" and a constantly changing internal and external environment).

10.4 Ontological Root (III) of v: Fluidity of Internal Relations (FIR)—The Continuous Microscopic Dynamics of the DPs Network and REs States Constituting an RS's "Relational Reality," and the Inherent Tension of "Existence Maintenance"

The third profound ontological source of "evolutionary rate (v)" lies in the "Fluidity of Internal Relations (FIR)" inherent in the "Relational Reality" basis of any "Relatedness System (RS)" (defined by its core "Commonality Reference, CRO"). This fluidity originates from the state of the "Dependency Path (DPs)" network constituting the RS and the "Relative Entities (REs)" manifested as "projection patterns" upon it. Even during periods when the RS's core CR rules are relatively stable, these are not absolutely static but exhibit continuous, microscopic-level dynamic changes and uncertainty. The RS's continuous "management" of and "response" to this internal fluidity in order to maintain its overall organization and function constitutes another important source of v.

Tracing Basic Principles and Mechanistic Elucidation:

The probabilistic and costly nature of the dynamic activation and maintenance of DPs:

According to the structural generation mechanism of *Relatedness Theory*, "Dependency Paths (DPs)" are initially "ignited" probabilistically from "Pure Being" potentiality via the "Commonality Self-Activation Mechanism (CSAM)." This means the existence of any DP itself is imprinted with the contingency and probability of its origin.

Even if a DP is activated and incorporated into an RS's structure, the maintenance of its connection strength, the fidelity of information transmission, and its prevention from randomly deactivating due to continuous faint fluctuations from the "Pure Being" background all require continuous "organizational effort" or "input of information/energy (in a broad sense)" by that RS internally through the "Global Bidirectional Self-Organization (BSO) mechanism." This constitutes an inherent tension or "cost" for "existence maintenance" at the DP level. This "cost" makes the connection states and transmission attributes of DPs themselves possess an intrinsic tendency towards minute changes or "decay."

The intrinsic evolutionary uncertainty of REs as dynamic patterns:

"Relative Entities (REs)," as dynamic patterns manifested from the DPs

network under specific SRO/CRO "projection rules," their own "stability" and "state" are also not immutable. They exhibit continuous, minute "state drift" or "pattern adjustment" due to the aforementioned fluidity of their underlying constituent DPs, complex interactions with other REs (these interactions also being mediated by dynamic DPs), and the intrinsic evolutionary uncertainty of RE patterns themselves as non-equilibrium structures.

The universality and inevitability of "microscopic agitation":

These factors—such as the faint residual influence of "Pure Being" background fluctuations, the inherent probabilistic fluctuations in DPs connection strength and activation state, the uncertainty in the evolution of REs themselves as dynamic patterns, and the imperfection of information transmission between different parts within an RS (e.g., potential "noise" or "delay")—collectively lead to a universal, unavoidable, continuous "microscopic agitation" or "spontaneous deformation of the relational fabric" within an RS.

Contribution Mechanism of FIR to an RS's v:

Continuous management and integration of internal fluidity by BSO: An RS, as a whole defined by its core CRO and pursuing (where "pursuing" refers to dynamically tending towards) the maintenance of its own organizational principles and functional coherence, its "Global Bidirectional Self-Organization (BSO) mechanism" must continuously monitor, respond to, coordinate, and integrate these unceasing "relational fluidities" of DPs networks and "microscopic dynamics" of REs states within it.

"Structural fine-tuning" and "information calibration" activities contribute to v: This continuous internal "structural fine-tuning" (e.g., strengthening certain key DPs connections, inhibiting certain unfavorable REs pattern fluctuations), "information calibration" (e.g., correcting information deviations caused by DPs transmission distortion or REs state drift), "reallocation of energy/resources to pay the maintenance cost of DPs/REs," and "operational synergy" (ensuring different parts can still work coordinately against a fluid background) "activities," undertaken to maintain the overall order and function of the RS (within the framework defined by its CRO), themselves constitute part of the RS's dynamism.

"Organizational cost" transforms into transformative propensity: The cumulative effect of these continuous internal "maintenance operations" or "organizational costs" prevents the RS from reaching absolute static equilibrium. On the one hand, they consume a certain generalized

"organizational resource" of the RS; on the other hand, they may also accumulate local "structural tensions" or "informational mismatches" in certain regions or levels within the RS. When these accumulated tensions or mismatches reach a certain degree, they may trigger broader structural adjustments or rule evolution within the RS.

Therefore, FIR, by compelling an RS to continuously engage in internal "self-regulation" and "morphological renewal," contributes to its overall evolutionary rate v. It profoundly reveals that the stability of an RS is not a rigid fixation but a dynamic "fluid equilibrium" maintained through continuous internal fine-tuning and relational reshaping, an equilibrium that itself inherently contains the propensity towards change.

10.5 Ontological Root (IV) of v: Open System Adaptation (OSA)—The Structural Adjustment Demands Arising from the Co-evolution of an RS as an Open System with its External Dynamic Environment (Other RSs/AROs)

The fourth key ontological source of "evolutionary rate (v)" lies in the eternal structural adjustment demands arising from the necessary continuous interaction and co-evolution between any "Relatedness System (RS)" as an open system and its external dynamic environment (which includes other RSs, higher-order "Encompassing/Inclusive Commonality References, AROs," and its relative "Pure Nothingness" potentiality background). This is termed "Open System Adaptation (OSA)."

Tracing Basic Principles and Mechanistic Elucidation:

The openness of an RS is one of its fundamental characteristics of existence: According to the posits of *Relatedness Theory*, no real "Relatedness System (RS)" defined by a core CRO is an isolated, closed system. It must, through its (relatively defined by CRO) boundaries, engage in continuous, bidirectional "Dependency Path (DPs)" connections and exchanges of (generalized) matter, energy, and information with its external environment to maintain its own existence and operation. This openness is the basis for an RS to draw "raw materials" from "Pure Being" potentiality, manifest structures, and participate in the broader network of Relational Reality.

The dynamism and incomplete predictability of the external environment: The external environment in which an RS is situated is itself neither static nor completely predictable. This external environment is constituted by other RSs that are also evolving (they too are driven by their respective EEPs and possess their own v's), AROs that may undergo rule evolution at higher levels, and the "Pure Nothingness" potentiality background, which is always filled with "Pure Being" fluctuations and "possibility permeation."

The "co-evolutionary" relationship between an RS and its external environment: Therefore, the relationship between an RS and its external environment is not a simple unidirectional "stimulus-response" one, but a profound, mutually influencing, co-evolutionary relationship. The behavior and evolution of an RS will change its external environment (e.g., the flourishing of a species RS will alter the resource distribution and selection pressures of its ecological ARO); conversely, changes in the

external environment will continuously pose new "demands" or impose new "constraints" on the RS's structure and operational modes.
Contribution Mechanism of OSA to an RS's v:
"Information difference input" and "changes in constraint conditions" within an RS triggered by external environmental changes: When an RS's external environment changes (e.g., rules at its dependent ARO level are adjusted, the state of adjacent other RSs significantly changes, or the novelty information flow from the "Pure Nothingness" background intensifies), this change will be transmitted into the RS via DPs connecting its boundary, in the form of (generalized) information, energy, or material flows. These "inputs," for the RS's existing internal CR rules, DPs network structure, and REs operational modes, may constitute new "information differences" (requiring processing and integration), new "resource availabilities" (requiring utilization or competition), or new "operational constraint conditions" (requiring compliance or circumvention).
The need for structural and rule adjustments within an RS in response to external changes: For an RS to maintain its existence (i.e., the relative continuity of organizational principles and identity defined by its core CRO) in its constantly changing, complex external environment, and possibly to acquire "resources" (in a broad sense, such as information, energy, or opportunities to establish favorable DPs connections with other RSs) needed for its operation and evolution, its internal structure, rules (SROs and even the CRO itself), or behavioral patterns (collective manifestation of REs) must continuously undergo adaptive adjustments in response to these external environmental changes and interactive demands.
"Adaptive pressure" and "relational adjustment demand" driving transformative propensity: This continuous "adaptive pressure" (e.g., to "survive" in competition with other RSs or to utilize new "opportunities" provided by an ARO), "information input processing demand" (e.g., understanding and integrating complex signals from the outside), and "external relational network adjustment demand" (e.g., establishing new alliance RSs, or severing connections with unfavorable RSs), arising from the eternal "co-evolution" between an RS as an open system and its dynamic external environment, is a crucial factor driving the increase of that RS's v.
These changes in an RS are not purposeful optimizations undertaken "in order to" better "adapt" to some fixed external environment. Rather, they are necessary adjustments and reorganizations of its internal state and

structure, influenced by external factors, occurring during its continuous, complex interactions with other dynamic systems as an open system. This continuous internal transformation and structural exploration, undertaken to maintain some (transient, non-equilibrium) "compatibility" or "effective interaction" with a dynamic environment, constitutes another important source of v. It embodies the ontological fact that no finite RS can exist and evolve in isolation from the broader relational network in which it is embedded.

10.6 The Overall Effect of v: As the Transformative Driving Force in the "Existence-Evolution Paradox (EEP)"

Following the detailed philosophical elucidation of the "evolutionary rate (v)," its core properties, and its four fundamental ontological roots—Infinite Potentiality Pressure (IPP), Incompleteness of Foundation (IoF), Fluidity of Internal Relations (FIR), and Open System Adaptation (OSA)—we clearly see that v is not an isolated dynamic parameter. Rather, it is an intrinsic, aggregate transformative propensity or sum of structural tension intensities necessarily exhibited by any "Relatedness System (RS)"—as a finite structured existence manifested from infinite "Pure Being," defined by a finite "Commonality Reference (CR)," possessing incomplete rules, being internally fluid, and openly interacting with a dynamic environment—under its profound ontological condition.

The overall effect of this v makes it play a crucial role in the grander dynamic tableau of *Relatedness Theory*—especially in the "Existence-Evolution Paradox (EEP)," which will be explored in depth shortly. In brief, v constitutes the "active" party (where "active" here refers only to its effect of promoting change, not to possessing active intent) in EEP, driving the RS to undergo structural transformation and evolution.

Within the framework of EEP, any RS simultaneously faces two seemingly opposing yet indispensable dynamic propensities: on the one hand, its intrinsic transformative propensity, represented by v, continuously pushing it to deviate from its current stable state, explore new relational patterns, adjust internal rules, or accelerate its overall evolutionary process; on the other hand, its need to maintain its core CR (especially its top-level CRO) in a relatively stable state for a certain "period of definitional power (T_CR)" in order to persist as an identifiable system with a specific identity and function, and the "maintenance cost (h(T))" (a concept from *Relatedness Theory's* exploratory formalization framework, referring philosophically to the generalized "organizational effort" or "cost" of maintaining stability) that increases superlinearly with stability requirements (i.e., the length of T_CR), which must be paid to achieve this stability.

The eternal conflict and mutual constraint between these two major propensities, and the fundamental constraint of the generalized "existence-bearing capacity (C_max)" (also an exploratory framework concept, philosophically referring to the overall "capacity" limit of any

finite structure, determined by its RS (the specific structure of its core CR), to organize information, transmit influence, manage internal conflicts, and effectively interact with the environment) that their joint operation must satisfy, together constitute the complete dynamic picture of the "Existence-Evolution Paradox (EEP)."

Therefore, this chapter's in-depth revelation of the ontological roots of v aims not only to understand why any RS necessarily changes but, more importantly, to lay a solid theoretical foundation for subsequent chapters to detail how EEP serves as the fundamental engine for the evolution of all things in the cosmos (all RSs), and how the "Existence-Evolution Axis (EEA)" serves as the historical trajectory record of this paradox-driven evolution. v is one of the logical starting points for understanding the entire dynamic system of *Relatedness Theory*; it profoundly links an RS's ontological condition with its dynamic evolutionary behavior.

10.7 Chapter Summary: "Evolutionary Rate (v)"—The Intrinsic Root of a "Relatedness System's (RS)" Transformative Propensity in Relational Reality

This chapter has deeply and systematically elucidated the "evolutionary rate (v)," a core dynamic concept in *Relatedness Theory*. We have clarified that v is not a physical velocity in the traditional sense, nor an evolutionary pressure with a specific directionality. Instead, it is an aggregate, intrinsic transformative propensity or sum of structural tension intensities inherent within any finite "Relatedness System (RS)" (defined by its core "Commonality Reference, CRO"), originating from its profound ontological condition and its continuous interaction and tension with its own constitution and external environment. Its changes do not point to any presupposed goal.

We have detailed the four fundamental ontological roots of v, which act in concert, making it impossible for any RS to remain eternally static but necessarily exhibit continuous change and evolutionary trends:

1. Infinite Potentiality Pressure (IPP): Originating from the interface tension between a finite RS and its relative "Pure Nothingness" background (infinite "Pure Being" potentiality), eternal random fluctuations, and the resulting "possibility permeation" and continuous "traction" effect on the RS's internal "Dependency Path (DPs)" network.

2. Incompleteness of Foundation (IoF): Originating from the rule system of the core CR (CRO and internal SROs) defining an RS. As a finite abstraction of infinite "Pure Being" potentiality, it necessarily possesses logical limitations, applicability boundaries, and potential internal inconsistencies or rule conflicts, which generate systemic logical and structural tension.

3. Fluidity of Internal Relations (FIR): Originating from the state of the DPs network constituting an RS's "Relational Reality" basis and the "Relative Entities (REs)" manifested as "projection patterns" upon it. Even during periods when the RS's core CR rules are relatively stable, these are not absolutely static but exhibit continuous, microscopic-level dynamic changes and uncertainty, as well as the inherent tension of "existence maintenance" from the RS's continuous internal adjustments to maintain its overall organization.

4. Open System Adaptation (OSA): Originating from the necessary continuous interaction and co-evolution between any RS as an open

system and its external dynamic environment (including other RSs, higher-order AROs, and its relative "Pure Nothingness" potentiality background), which generates eternal structural adjustment demands and relational reshaping pressures.

This chapter emphasized that the operation of v does not point to any presupposed goal or optimal state but provides the intrinsic "impetus" and broad "possibility space" for an RS's evolution. The specific direction and outcome of changes occurring in an RS driven by v are fraught with contingency and path dependence, and emerge probabilistically through the "Global Bidirectional Self-Organization (BSO) mechanism" in a complex interplay (i.e., the "Existence-Evolution Paradox, EEP," to be detailed in subsequent chapters) with the need to maintain its current stability (characterized by T_CR).

The understanding of "evolutionary rate (v)" and its profound ontological roots is fundamentally enlightening for us to grasp, from the unified perspective of *Relatedness Theory*, why all things in the cosmos eternally change and why they exhibit diverse evolutionary rates and transformative modes. It reveals that "change" is not merely an "event," but rather a fundamental "state" or "condition" necessarily exhibited by a "Relatedness System"—as a finite, relational, structured existence—in its eternal interaction with infinite potentiality and a dynamic environment. The evolutionary rate is the intrinsic root of eternal "generation" and "transformation" for any finite "Relatedness System (RS)" in the cosmos of *Relatedness Theory*; its profound understanding is the core gateway to *Relatedness Theory's* entire dynamic and evolutionary theoretical system.

Chapter 11: Existence-Evolution Paradox (EEP)—The Eternal Tension Between a "Relatedness System's (RS)" Persistence and its Transformative Propensity

11.0 Introduction: From the Intrinsic Transformative Propensity (v) of a "Relatedness System (RS)" to the Fundamental Contradiction (EEP) Between its "Existence" and "Evolution"

In Chapter 10, we have thoroughly elucidated the "evolutionary rate (v)" as the overall manifestation of the intrinsic transformative propensity of any finite "Relatedness System (RS)" (defined by its core "Commonality Reference, CRO"). We clarified that v does not originate from any presupposed goal or singular external driver but is rooted in the profound ontological condition of that RS—namely, its existence as a finite structure manifested from the infinite potentiality of "Pure Being," the "Incompleteness of Foundation (IoF)" of its core CR rules, the "Fluidity of Internal Relations (FIR)" of the "Dependency Path (DPs)" network constituting its "Relational Reality," and the continuous interaction and tension of "Open System Adaptation (OSA)" between it as an open system and its external dynamic environment (other RSs or higher-order "Encompassing/Inclusive Commonality References, AROs"). These four ontological roots are the necessary consequences of their combined action.

A core question then arises: if any RS intrinsically and continuously possesses a non-zero "evolutionary rate (v)"—that is, a transformative propensity driving it to deviate from its current stable state, explore new relational patterns, adjust internal rules, or accelerate its overall evolutionary process—then how can this RS persist as an identifiable "system" with a specific identity, structure, and function? What mechanism prevents an RS from rapidly disintegrating under the drive of its intrinsic v, dissipating into infinite potentiality, or endlessly and divergently changing to the point of losing any definable form and meaning? In short, what exactly is the relationship between the very fact of an RS's "existence" and its intrinsic "transformative propensity (v)"?

To answer this series of fundamental questions concerning the core of *Relatedness Theory's* cosmic dynamics, *Relatedness Theory* introduces its most iconic core dynamic principle—the "Existence-Evolution Paradox

(EEP)." EEP is not a simple juxtaposition of the concepts of "existence" and "evolution." Rather, it profoundly reveals the inherent, unavoidable, mutually constraining yet mutually dependent "contradictory" relationship, which constitutes an eternal tension, between the fundamental need of any finite RS to "persist in existence" (specifically manifested as its core CR—especially its top-level CRO—maintaining the effectiveness of its rules and the relative stability of its structure within a certain "period of definitional power, T_CR") and its intrinsic "transformative propensity (v)" originating from its profound ontological condition.

This chapter, starting from the basic principles of *Relatedness Theory*, will meticulously elucidate the philosophical definition of the "Existence-Evolution Paradox (EEP)," its core constituent elements (namely v, T_CR, and the concepts of "maintenance cost, h(T)" and the RS's "existence-bearing capacity, C_max," which are related to T_CR, proposed in *Relatedness Theory's* exploratory formalization framework but possess profound corresponding significance at the philosophical principled level), and deeply analyze the operational mechanism of EEP—how it drives an RS to experience cycles of stable periods and periodic structural reconstructions along its unique "Existence-Evolution Axis (EEA)." Ultimately, this chapter aims to reveal the profound philosophical implications of EEP as the fundamental engine driving the evolution of all things (all RSs) and manifesting their diversity and creativity within the entire cosmic tableau of *Relatedness Theory*.

11.1 Philosophical Demarcation of the "Existence-Evolution Paradox (EEP)": The Fundamental Dilemma of a Finite RS Between "Persisting As Is" and "Transcending Itself"

11.1.1 Precise Philosophical Definition of EEP

Within the dynamic theoretical system of *Relatedness Theory*, the "Existence-Evolution Paradox (EEP)" is precisely defined as: the fundamental, unavoidable, mutually constraining yet mutually dependent intrinsic tension existing within any finite "Relatedness System (RS)" defined by its core "Commonality Reference (CRO)." This tension is between, on the one hand, the RS's need to maintain the relative stability of its core CR for a certain "period of definitional power (T_CR)" in order to persist as an identifiable "unit of existence" with a specific identity, structure, and operational rules, and, on the other hand, that RS's intrinsic overall "evolutionary rate (v)," which originates from its profound ontological condition (i.e., the combined action of the four roots: Infinite Potentiality Pressure (IPP), Incompleteness of Foundation (IoF), Fluidity of Internal Relations (FIR), and Open System Adaptation (OSA)) and drives it to deviate from the stable state currently defined by its CR and to explore new relational patterns or rule adjustments.

11.1.2 The "Paradoxical" Nature of EEP—The Mutual Necessity and Mutual Opposition of "Existence" and "Evolution"

The "Existence-Evolution Paradox (EEP)" is termed a "contradiction" or even a "paradox" because the two aspects constituting its tension—"persisting as is" (for stable existence) and "transcending itself" (intrinsic transformative propensity)—are, for any finite "Relatedness System (RS)," indispensable for its being as a dynamic, evolving "existence." Yet, in their operational tendencies, they naturally constrain and challenge each other.

The necessity of "Existence"—with the stability of CR (T_CR) as its core representation:

A "Relatedness System (RS)" can manifest from the infinite potentiality background of "Pure Being" and "exist" as an identifiable unit with a specific identity, structure, and operational rules, fundamentally because its core "Commonality Reference (CR)" (especially its top-level

CRO) can maintain the effectiveness of its rules and the relative stability of its structure within a certain "period of definitional power (T_CR)."

This stable CR is like the RS's "existence basis" and "organizational core"; it defines the RS's boundaries, the connection rules of its internal "Dependency Path (DPs)" network, and the manifestation patterns and interaction laws of "Relative Entities (REs)." Without the assurance of this (relative) stability of the CR within T_CR, the overall structure of the RS could not be maintained, its identity would become indistinct, its internal orderly operation would disintegrate, and it might ultimately rediffuse into disordered potentiality. Therefore, "persisting" in the stability of its core CR is the prerequisite for an RS to "be what it is" and to be identified and interact within "Relational Reality."

The necessity of "Evolution"—with the RS's intrinsic transformative propensity (v) as its core representation:

Meanwhile, as detailed in Chapter 10, any finite RS necessarily and intrinsically possesses a non-zero "evolutionary rate (v)." This v originates as a necessary consequence of its condition as a finite structure facing infinite potentiality (IPP), the incompleteness of its rule definitions (IoF), the continuous fluidity of its constituent relations (FIR), and the pressure of co-evolving with a dynamic environment as an open system (OSA).

This intrinsic "transformative propensity" or "structural tension" represented by v is the fundamental prerequisite for an RS to adjust its own internal structure, integrate new informational inputs, repair internal inconsistencies arising from IoF or FIR, and respond and adjust to the dynamic external environment it is situated in. An RS completely devoid of v (i.e., v approaches zero) would be an absolutely rigid, "dead" structure incapable of adapting to any internal or external changes. Such a structure, even if it could temporarily exist, would ultimately and inevitably disintegrate due to its inability to effectively manage the other constituent elements of its "Existence-Evolution Paradox (EEP)" (e.g., the possibly infinitely increasing "maintenance cost, h(T)" required to maintain its absolute stability, or the exhaustion of its finite "existence-bearing capacity, C_max"—these concepts will be discussed in detail in the next section). Therefore, "evolution"—that is, exhibiting the transformative propensity represented by v—is also a necessary condition for an RS to persist as a dynamic process.

The mutual opposition and constraint between "Existence" and "Evolution":

However, an RS's pursuit of core CR stability (i.e., extending T_CR as much as possible) in order to "persist as is" often, in its operational tendency, conflicts with the RS's intrinsic "evolutionary rate (v)." For example, to enhance CR stability, the system might tend to solidify existing DPs network structures, suppress excessive variation in internal REs patterns, or more strictly "filter" novelty information inputs from the "Pure Nothingness" background. These mechanisms, to some extent, help extend T_CR, but they may also suppress certain manifestations of v, reducing the RS's transformative vitality and its capacity for rapid response to new environments.

Conversely, an excessively high or uncontrolled "evolutionary rate (v)" (e.g., due to severe impact from IPP, acute exacerbation of internal contradictions caused by IoF, frequent structural reorganization triggered by FIR, or disruptive adaptive pressure from OSA) will continuously and intensely "challenge" and "erode" the stability of the RS's core CR, tending to significantly shorten its effective T_CR, and may even force its disintegration or fundamental reconstruction before its normal "period of definitional power" is exhausted.

Therefore, the fundamental dilemma faced by an RS is: it needs to ensure its "existence" and "identity" by maintaining the relative stability of its core CR, yet it must also permit and exhibit sufficient intrinsic "evolutionary rate (v)" to cope with the eternal challenges posed by its ontological condition and to achieve "evolution" and "generation." The balance between these two is dynamic, subtle, and something no finite RS can perfectly maintain forever. This inherent tension of "needing to be stable yet also needing to change, but stability inhibits change, and change threatens stability" is precisely the essence of the "Existence-Evolution Paradox (EEP)."

11.2 Core Constituent Elements of EEP: The Eternal Game Between Transformative Propensity and the Cost of Persistence Under Fundamental Constraints

The "Existence-Evolution Paradox (EEP)," as the core impetus driving the evolution of a "Relatedness System (RS)," its intrinsic tension originates from several interconnected core constituent elements. These elements collectively define the dynamic "chessboard" and basic "rules" for the eternal game played by any finite RS between "persisting as is" and "transcending itself."

11.2.1 "Evolutionary Rate (v)": As the Intrinsic Propensity Driving Transformation in EEP

As has been detailed in Chapter 10, the "evolutionary rate (v)" is the aggregate, intrinsic transformative propensity or sum of structural tension intensities inherent within any finite "Relatedness System (RS)," originating from its four fundamental ontological roots (Infinite Potentiality Pressure, IPP; Incompleteness of Foundation, IoF; Fluidity of Internal Relations, FIR; and Open System Adaptation, OSA), whose changes do not point to any presupposed goal.

In the dynamic tableau of EEP, v plays the role of the "transformative driving force," continuously pushing the RS to deviate from the relatively stable state currently defined by its core "Commonality Reference (CR)" (especially its top-level CRO), challenging existing rules and structures, and exploring new relational patterns and possibility paths. It is the fundamental intrinsic force driving the "Evolution" dimension of the RS.

11.2.2 The Necessity of "Persisting As Is" and its Cost and Limits: Centered on a CR's "Period of Definitional Power (T_CR)," Profoundly Constrained by "Maintenance Cost (h(T))" and "Existence-Bearing Capacity (C_max)"

Opposing the RS's intrinsic "transformative propensity (v)" is its fundamental need for "Sustained Existence" as an identifiable whole with a specific identity and function. The core representation of this "persisting as is" lies in its core "Commonality Reference (CR)" (usually the CRO defining that RS) being able to effectively maintain its internal structural integrity and continuously serve as that RS's "existence basis" and "rule definer" for a certain "period of definitional power (T_CR)."

T_CR represents the stability timescale of the RS's current "existence paradigm."

However, maintaining this stability is neither without cost nor without limits. As we preliminarily introduced in Chapter 4 (sections 4.4.2, 4.4.3) and profoundly revealed at the philosophical principled level of *Relatedness Theory*:

1. The generalized "cost (h(T))" of maintaining CR stability and its possible superlinear growth:

Any finite, ordered, structured existence (RS), in order to resist various factors (internal, such as the transformative propensity represented by v, and external, such as IPP and OSA) tending to disintegrate its existing order and structure, and to maintain the coherence and effectiveness of its core CR within a certain T_CR, necessarily needs to continuously engage in some form of generalized "organizational effort" or "maintenance cost (h(T))". This "expenditure" is the inherent, unavoidable "cost" for an RS to "persist as is."

A core philosophical insight of *Relatedness Theory* is that pursuing a higher degree of stability (i.e., a longer T_CR) or maintaining the same T_CR under stronger v pressure typically causes the required "maintenance cost (h(T))" to increase disproportionately and sharply (possibly superlinearly). The philosophical root of this possible superlinear growth lies in the exponentially increasing difficulty of managing growing internal complexity (such as contradictions exposed by IoF, cumulative effects of FIR) and continuously counteracting external "possibility permeation" (IPP), as well as potential lags and costs of adaptive adjustment (OSA). This characteristic of "maintenance cost (h(T))" is one of the key philosophical posits explaining why the T_CR of any finite CR is necessarily finite and cannot achieve eternal stability. It constitutes the increasingly heavy cost that the "persistence" force, which counters the "evolutionary rate (v)" in EEP, must pay.

2. An RS's finite "existence-bearing capacity (C_max)" as a fundamental constraint:

Any RS defined by a specific core CR, as a concrete, finite, structured existence, its overall "capacity" or "efficiency" to organize information, transmit influence, manage internal conflicts, integrate internal and external changes, and effectively interact with the environment is necessarily finite. This overall "capacity limit," determined by the structural complexity, organizational efficiency, and

intrinsic stability of its core CR, is the limit of internal "activity intensity" it can bear (in a broad sense, this can be understood as the "existential stress" or generalized "information/energy flux" that the RS as a whole needs to "process" and "bear," arising from the combined action of transformative activities driven by v and costly maintenance activities for T_CR, h(T)). We term this an RS's "existence-bearing capacity (C_max)."

The RS's overall "activity intensity" or "existential stress" (which in *Relatedness Theory's* exploratory formalization framework might be conceptualized as a comprehensive metric, e.g., a generalized "total entropy production rate Σ," which is some function of v and h(T), i.e., Σ(v,h(T))) cannot exceed this C_max determined by its CR structure. That is, $\Sigma(v,h(T)) \leq C_{max}$ constitutes the fundamental constraining boundary for the operation of the "Existence-Evolution Paradox (EEP)." This constraint profoundly reflects the universal principle that "finite existence cannot bear infinitely," setting an insurmountable "red line" for EEP's operation.

In summary, the core constituent elements of the "Existence-Evolution Paradox (EEP)"—namely, the intrinsic transformative propensity "evolutionary rate (v)" driving change; the CR's "period of definitional power (T_CR)" representing the demand for "persisting as is"; the generalized "cost (h(T))" (and its possible superlinear growth characteristic) required to maintain this "persistence"; and the RS's finite "existence-bearing capacity (C_max)" to which all these operations must submit—collectively constitute the basic dynamic framework for the eternal game played by any finite "Relatedness System (RS)" between "existence" and "evolution."

11.3 Operational Mechanism of EEP: The Continuous Interplay of v and T_CR (and h(T)/C_max) within an RS, and the Periodic Rupture of Dynamic Equilibrium

The "Existence-Evolution Paradox (EEP)" is not a static standoff but a continuous, dynamic interplay, a process of ongoing "negotiation" and "balancing" within an RS via its "Global Bidirectional Self-Organization (BSO) mechanism." This process ultimately leads to periodic, fundamental transformations of the RS's "existence basis" (its core CR).

11.3.1 The "Stable Period" of an RS Driven by EEP: Transient Dynamic Equilibrium of v and T_CR

During a "plateau phase" on a "Relatedness System's (RS)" "Existence-Evolution Axis (EEA)," its core "Commonality Reference (CR)" (usually the top-level CRO defining that RS, which embodies its "existence basis" and fundamental operational rules) is in a relatively stable state; its "period of definitional power (T_CR)" has not yet been exhausted by the accumulation of the "Existence-Evolution Paradox (EEP)."

At this time, the RS's internal "Global Bidirectional Self-Organization (BSO) mechanism," under the constraint of its core CR's defined "existence-bearing capacity (C_max)," dynamically manages and balances the transformative propensity brought by its intrinsic "evolutionary rate (v)" with the generalized "maintenance cost (h(T))" required to maintain its core CR's stability within T_CR. This is achieved through continuous internal adjustments (e.g., fine-tuning of its internal "Dependency Path (DPs)" network's connection strengths and topology, adaptive changes in "Relative Entity (REs)" states, or local optimization of operational rules within its internal "Relatedness Levels (RLs)" defined by "Specific Commonality References (SROs)"—these adjustments themselves also being manifestations of EEP operating at a more microscopic level).

The system in this phase exhibits a dynamic, non-equilibrium steady state, far from absolute stasis, continuously undergoing self-adjustment to maintain the overall organizational principles and operational modes defined by its core CR. In this non-equilibrium steady state, a temporary, relative dynamic equilibrium is reached between the transformative propensity represented by the "evolutionary rate (v)" and

the core CR's "period of definitional power (T_CR)" (along with its associated h(T) and C_max constraints), through the continuous operation of BSO. This equilibrium enables the RS, within the referential framework of that core CR, to maintain the relative stability of its structure and function, and to exhibit a certain adaptability (referring to its capacity to adjust via BSO to cope with internal and external perturbations, non-teleologically) and robustness (referring to its capacity to resist minor perturbations to maintain its core CR's stability).

11.3.2 Accumulation and Intensification of EEP Contradictions: The Path Towards CR Destabilization

However, this transient equilibrium is not eternal. With the continuous operation of the RS and its interaction with internal and external environments: Certain sources of v may intensify: For example, the "Infinite Potentiality Pressure (IPP)" from the "Pure Nothingness" background might increase its perturbing effect due to some change at the RS boundary; the "Incompleteness of Foundation (IoF)" of the RS's core CR might increasingly expose its deep-seated contradictions when processing more complex information or encountering more extreme situations; the cumulative effect of "Fluidity of Internal Relations (FIR)" within the RS might lead to structural fatigue or systemic deviations in information transmission; or the external environment (OSA) in which the RS is situated might undergo drastic changes, posing more severe adaptive challenges. The "cost (h(T))" of maintaining the current CR might rise sharply: Even if v does not significantly intensify, merely because the RS attempts to sustain the "period of definitional power (T_CR)" of its core CR, the required "maintenance cost (h(T))" will also increase superlinearly with the "aging" of T_CR (referring to the declining match between its rules and evolving reality) or increasing complexity. These factors acting in concert will cause the RS's overall "activity intensity" or "existential stress" (conceptually, Σ related to v and h(T)) to gradually approach the upper limit C_max that its core CR structure can bear. At this point, the RS's internal BSO mechanism may find it increasingly difficult to effectively alleviate the tension of EEP through original local adjustments. The "structural stress" within the RS continuously rises, the stability of its core CR is fundamentally threatened, and the system gradually slides towards the brink of destabilization.

11.3.3 Destabilization and Disintegration of CR: The Inevitable Result of EEP Contradiction Intensification, Opening a "Transition Node" on the EEA

When an RS's overall "activity intensity" or "existential stress" (Σ) attempts to exceed its core CR's "existence-bearing capacity (C_max)," or when the core CR's "period of definitional power (T_CR)" exhausts its "definitional power" due to the combined action of internal and external factors and can no longer effectively organize the RS's internal DPs network and REs manifestation, that core CR loses its stable capacity as the RS's "existence basis" and "rule core," and the "order" it defines begins to disintegrate.

This marks the end of a "plateau phase" on the RS's "Existence-Evolution Axis (EEA)," and the system enters a "Transition Node" fraught with uncertainty but also filled with infinite possibilities—the period of fundamental reconstruction of the core CR. The old "existence paradigm" fails, opening the door for the emergence of a new "existence paradigm."

11.4 Fundamental Reconstruction of CR: EEP-Driven "Displacement" of "Existence Basis" and its Mechanism

When the "Existence-Evolution Paradox (EEP)" within a "Relatedness System (RS)"—that is, the tension between its intrinsic "evolutionary rate (v)" and its core "Commonality Reference's (CR)" (especially the top-level CRO) "period of definitional power (T_CR)" and corresponding generalized "maintenance cost (h(T))"—intensifies to a critical point under the constraint of that RS's finite "existence-bearing capacity (C_max)," that core CR (as a stable relational structural pattern embodying specific "commonality rules") loses its stable capacity as the RS's organizational core and "existence basis," and the "commonality rules" it embodies begin to disintegrate. This marks the end of a relatively stable "plateau phase" on the RS's "Existence-Evolution Axis (EEA)," and the system enters a "Transition Node" fraught with uncertainty but also filled with infinite innovative possibilities—the period when the rule system embodied by the core CR undergoes fundamental reconstruction. This reconstruction process is not a simple repair or adjustment of the old CR, but a profound "displacement" of the RS's "existence basis" (i.e., a fundamental transformation in the form of its core commonality rules, its configuration as a stable relational structural pattern, and its mode of operation within the abstract "CR possibility space"). Its mechanism is complex and subtle, profoundly embodying the dynamic and evolutionary principles of *Relatedness Theory*.

11.4.1 Failure of Old CR Rule System and the Opening of a "Chaotic Exploratory Period": The Re-release of Potentiality

The disintegration of the old core CR means that the original "Dependency Path (DPs)" network structure and "Relative Entity (REs)" manifestation patterns within the RS it defined lose their unified organizational principle and stable referential framework. The system may exhibit a state of high disorder: DPs connections may undergo random breaking and recombination, and REs patterns may show rapid fluctuations or unpredictable behavior. This is a critical state where "the old order is dead, the new order is not yet born," a temporary vacuum in the RS's "existence basis."

In this "chaotic exploratory period," due to the collapse of the old CR's "Defining Field" and the failure of its "projection rules" and

"identifiability threshold" for the relative "Pure Nothingness (PN)" background, a portion of the "Pure Being" potentiality previously "veiled" by the old CR's "Pure Nothingness"—including a large number of "Primordial Vectors (PVs)" with "inherent necessary propensities" incompatible with the old rules, as well as latent, previously suppressed DPs connection possibilities—gains the opportunity to be re-"scrutinized" and probabilistically "activated." The RS's boundary may thus become more blurred and permeable, and its interaction with relative "Pure Nothingness" (e.g., perturbations from "Infinite Potentiality Pressure, IPP") may become more direct and intense, providing rich "raw materials" for the system to explore entirely new possibility paths driven by the "Global Bidirectional Self-Organization (BSO) mechanism."

11.4.2 Possible Reactivation of CSAM in CR Reconstruction: Providing "Structural Germination" for New CR Emergence

During the period when the old CR's structural constraints are lifted and the system's interactive interface with relative "Pure Nothingness" potentiality becomes more open and fluid, *Relatedness Theory* speculates that the "Commonality Self-Activation Mechanism (CSAM)" (as a specific manifestation of the "Global Bidirectional Self-Organization, BSO" mechanism during structural origin or key turning points, or some variant adapted to a background with pre-existing partial structures) may be "re-ignited."

At this time, CSAM's operational basis is no longer completely undifferentiated "Pure Being," but a potentiality background that has experienced structurization but is currently in a state of deconstruction and high plasticity (containing PVs and DPs fragments released after the old CR's disintegration, as well as newly activated PVs from the "Pure Nothingness" background). It may utilize these potentialities, through its dual-path synergistic mechanism of "Superpositional Emergence" (temporary potentiality convergence regions or "seed foci" possibly accidentally formed in chaos, these "seed foci" perhaps influenced by continuous IPP action or the cumulative effects of the RS's internal "Fluidity of Internal Relations, FIR") and "Entangled Stabilization" (based on the matching of residual "commonality information" and newly activated PVs' "relational propensities," probabilistically forming new, small-scale, local DPs connections and potential CR candidate patterns), within the overall dynamic background of BSO, to probabilistically generate numerous new, small-scale, local DPs connections and potential

Commonality Reference (CR) "candidate patterns" or "structural germinations." These "possibility germinations" and "structural candidates" produced by a (reactivated) CSAM provide the BSO mechanism with richer "raw materials" for "selection" (referring to dynamic stabilization screening, not teleological selection) and "organization" during the chaotic exploratory period, thereby potentially accelerating the emergence of a new CR' (a new, stable relational structural pattern embodying different commonality rules) or increasing the diversity and novelty of the new CR'.

11.4.3 Probabilistic Emergence and Stabilization of a New CR' Under BSO Dominance: The Four Sources of v Jointly Shaping "Possibility Paths"

In the "chaotic exploratory period," through the continuous operation of the "Global Bidirectional Self-Organization (BSO) mechanism" (even after the old core CR disintegrates, BSO, as the fundamental organizing principle of "Relational Reality," still drives the system, non-teleologically, at local and global levels, to explore possible paths to new dynamic equilibria and ordered structures), and the interaction, competition, and synergy among the numerous "possibility germinations" (new "Dependency Path, DPs" connections and potential CR prototypes) produced by a possibly reactivated "Commonality Self-Activation Mechanism (CSAM)," a new Central Commonality Reference CR' (which will possess its own "period of definitional power T'_CR," generalized "maintenance cost" h'(T'), and "existence-bearing capacity" C'_max characteristics), if the "commonality rule" system it embodies can more effectively manage the balance between the "evolutionary rate (v)" and T'_CR/h'(T') within the "Relatedness System (RS)" (which may have significantly changed due to the old CR's collapse) under its own C'_max constraint, may emerge with a certain probability and gradually stabilize, becoming the RS's new core CR (usually a CRO).

In this process of exploring and a new CR' emerging, the four ontological sources of the RS's intrinsic "evolutionary rate (v)"—namely, the "traction" effect of Infinite Potentiality Pressure (IPP) on the RS's internal DPs network (after the old CRO disintegrates, the RS boundary becomes more open, and the structural influence of "possibility paths" with different "relational propensities" from the relative "Pure Nothingness" background on the RS's reorganizing internal DPs network becomes more direct and significant); the "logical pain points" or unmet "structural demands" of the old CR rule system exposed by

Incompleteness of Foundation (IoF) (which may make candidate patterns for a new CR' that happen to somehow "solve" or "bypass" these old "pain points" have a relatively higher stabilization probability or lower formation "threshold" in BSO's dynamic evolution); the rich "structural diversity" and "exploratory attempts" possibly generated by Fluidity of Internal Relations (FIR) during the chaotic period; and the responsive demand to (possibly changed) external environmental conditions from Open System Adaptation (OSA)—will collectively, via the BSO mechanism, influence the "possibility direction" (in the abstract "CR possibility space") of the new CR''s emergence and the probability distribution of its eventual "selection" (dynamic stabilization into a new, stable relational structural pattern embodying specific rules).

This systemic reorganization and adjustment of the underlying DPs network, co-shaped by multiple internal and external factors, ultimately manifests as a "displacement" of the Commonality Reference (CR) embodied rule system, as its organizational core, in the "possibility space" of "Pure Being"—that is, its core commonality rules, its form as a stable relational structural pattern, and its mode of operation undergo a fundamental transformation. This "displacement" is the RS's overall complex dynamic response to the pressure of its intrinsic "Existence-Evolution Paradox (EEP)" (after its core CR collapses due to EEP intensification, causing the RS's overall "activity intensity" Σ to reach its "existence-bearing capacity C_max"). It is the macroscopic result of its DPs network, driven by the "Global Bidirectional Self-Organization (BSO) mechanism," spontaneously and non-teleologically reaching a new, transient, dynamic stable state or organizational mode capable of more effectively managing its EEP balance under that RS's new C'_max constraint, through the combined action and probabilistic exploration of multiple internal and external factors (including the four sources of v).

11.4.4 The Beginning of a New Stable Period: Renewal of the RS's "Existence Basis" and the Advent of a New EEA "Plateau Phase"

The establishment and stabilization of the new CR' signify that the "Relatedness System (RS)" has successfully completed a profound "displacement" and "paradigm shift" of its "existence basis." This RS will take this new CR' (and the entirely new "commonality rule" system it embodies) as its core organizational principle and referential framework; its internal "Dependency Path (DPs)" network will reorganize around the

new CR', and "Relative Entity (REs)" patterns will manifest under the new CR''s "projection rules" and corresponding "identifiability threshold."

The RS thereby enters a new, relatively stable "plateau phase" on its "Existence-Evolution Axis (EEA)," beginning a new period of existence and evolution under different rules and structures. This new stable period will continue until the "period of definitional power (T'_CR)" of this new CR' once again faces its end due to the continuous accumulation and intensification of EEP contradictions within its own RS, at which point the RS may once again enter the next "transition node" on the EEA, initiating a new round of "existence basis" reconstruction.

11.5 Philosophical Implications of EEP: Its Universality and Generativity as the Core Engine of Evolution for All Relatedness Systems in Relatedness Theory

The "Existence-Evolution Paradox (EEP)," as the core dynamic principle of *Relatedness Theory*, has profound and extensive philosophical implications, fundamentally reshaping our understanding of the evolutionary essence of "Relatedness Systems (RSs)" (regardless of their scale and nature):

EEP is the universal intrinsic mechanism for the evolution of all finite RSs, not a special phenomenon of specific systems: From the most microscopic physical structures (if they can be considered RSs) to the most macroscopic cosmic-scale structures (if the universe as a whole is an ultimate RS), from non-living chemical reaction network RSs to complex living organism RSs, from individual cognitive RSs to human socio-cultural RSs—as long as it is a finite Relatedness System defined by a specific CR and situated within the cosmic background of *Relatedness Theory*, it is necessarily governed by EEP. The universality of EEP stems from the fundamental dilemma of "persisting as is" versus "transcending itself" that any finite existence necessarily faces.

The EEP-driven evolutionary process possesses intrinsic generativity and is the fundamental wellspring for the continuous emergence of novelty, complexity, and diversity in Relatedness Systems (though the specific direction and outcome of its emergence are not presupposed): EEP does not merely lead to cyclical recurrence or simple repetition in RSs. Each reconstruction of a core CR (a "transition node" on the EEA) is a process wherein, after the old order disintegrates, the system, through the (possible) reactivation of CSAM and the chaotic exploration of BSO, probabilistically gives rise to a new CR' from the infinite potentiality of "Pure Nothingness." This new CR' may represent organizational principles, commonality rules, or structural complexity entirely different from the old CR, thereby opening up entirely new evolutionary paths and possibility spaces for the RS. The generation of novelty, the growth of complexity, and the manifestation of diversity in the cosmos are, in the view of *Relatedness Theory*, the cumulative results of innumerable RSs continuously undergoing this kind of contingency-filled "creative destruction" and "structural innovation" driven by their respective EEPs.

EEP profoundly reveals the inseparable dialectical unity between "existence" and "evolution," "stability" and "transformation": In

Relatedness Theory, "existence" is not a static "being," but a dynamic process of "persisting," characterized by the relative stability of a core CR within its T_CR. "Evolution" is also not a change imposed by external forces but the necessary result of the contradictory motion between an RS's intrinsic v and this need for "persistence." Stability is temporary and costly; it gestates the pressure for transformation. Transformation is the breakthrough of stability's limits, which in turn leads to new (temporary) stability. EEP unifies these two in an eternal, interdependent, mutually transformative dynamic cycle.

Understanding EEP helps us to examine, from a more fundamental and unified perspective, the intrinsic driving forces behind various evolutionary phenomena in different fields such as physics, biology, cognition, and society: Although the specific CR, DPs, and REs manifestations of RSs in different fields vary greatly, the underlying dynamic logic driving their fundamental transformations and evolution—namely, EEP—is considered unified in *Relatedness Theory*. This provides the possibility for establishing a "meta-theoretical" framework capable of transcending disciplinary boundaries and understanding the commonalities in the evolution of various complex systems.

11.6Chapter Summary: "Existence-Evolution Paradox (EEP)"—The Intrinsic Tension Driving a "Relatedness System (RS)" Eternally Forward in the Rhythm of "Existence" and "Evolution"

This chapter has thoroughly elucidated the philosophical connotation, constituent elements, operational mechanism, and profound implications of the "Existence-Evolution Paradox (EEP)" as the core dynamic principle of *Relatedness Theory*.

We first precisely defined the philosophical essence of EEP: it is the inherent, irreconcilable, yet generative eternal tension within any finite "Relatedness System (RS)" defined by its core "Commonality Reference (CR)" (especially a CRO). This tension exists between the RS's necessary demand to "persist in existence" (manifested as the stability of its core CR within a certain "period of definitional power, T_CR") and its intrinsic "transformative propensity (v)." We revealed that this paradox originates from the mutual necessity of "existence" and "evolution" for an RS, as well as their opposing and constraining operational tendencies.

Next, we detailed the core elements constituting EEP: an RS's intrinsic "evolutionary rate (v)" (as the driver of transformation, its four ontological roots having been elucidated in Chapter 10); the core CR's "period of definitional power (T_CR)" (as the representation of persistence); and, related to T_CR, the concepts proposed in *Relatedness Theory's* exploratory formalization framework but possessing profound corresponding philosophical principled meaning—the "maintenance cost, h(T)" (the generalized "organizational effort," which increases superlinearly with stability requirements, that any finite ordered structure must expend to resist internal and external tendencies towards disintegration and maintain its own stability) and the RS's "existence-bearing capacity, C_max" (the overall "capacity" limit, determined by its core CR structure, for any finite RS to organize and process internal "activity intensity" or "existential stress"). These elements collectively define the dynamic "parameter space" and fundamental constraining boundaries for EEP's operation.

The core of this chapter lay in elucidating the operational mechanism of EEP: how v and T_CR (along with its accompanying h(T)/C_max constraints) continuously interplay within an RS. During an EEA "stable period," the BSO mechanism, under C_max constraint, maintains a transient equilibrium between v and T_CR. However, the necessary

accumulation and intensification of EEP contradictions ultimately lead to the destabilization and disintegration of the core CR, opening an EEA "transition node." At this node, through the failure of old CR rules, the re-release of potentiality, the possible reactivation of CSAM, and the chaotic exploration of BSO, a new core CR' probabilistically emerges. We particularly emphasized how, in this process, the "traction" effect of IPP from the "Pure Nothingness" background on the RS's internal DPs network might indirectly cause the CR, as the "focus" of the DPs network, to undergo "displacement" in the "possibility space" of "Pure Being," thereby achieving a fundamental transformation and renewal of its "existence basis."

Finally, we emphasized the universality, generativity, and non-preset directionality of change of EEP as the core engine for the evolution of all Relatedness Systems described in *Relatedness Theory*. EEP is not a "problem" to be "solved," but the eternal wellspring of all structural evolution, complexity growth, and novelty emergence in the cosmos of *Relatedness Theory*. It profoundly reveals the inseparable dialectical unity between "existence" and "evolution," and is key to understanding the dynamic evolution and continuous generation of the entire cosmic tableau of *Relatedness Theory*.

Chapter 12: Global Bidirectional Self-Organization (BSO)—The Fundamental Organizing Principle Permeating "Relational Reality," Originating from the Interactive Logic of the Bidirectional Potential Infinity and Inherent Necessary Propensity of "Primordial Vectors (PVs)"

12.0 Introduction: Transcending "Mechanism," Exploring the Logical Genesis of "Relational Reality's" Operation—Reshaping the Ontological Status of BSO

In the theoretical system of *Relatedness Theory*, we are committed to logically deducing the generation, structure, and evolution of all things in the cosmos (understood in *Relatedness Theory* as "Relatedness Systems, RSs" of various scales and levels) from the most primordial ontological posits. We have already established "Pure Being" as the sole, infinitely rich potentiality field, intrinsically containing eternal random fluctuations; and "Primordial Vectors (PVs)" as potentiality units logically distinguishable from "Pure Being," carrying the most fundamental "inherent necessary propensity" (i.e., their unique "way or potentiality of existence and interaction"). These PVs are the ultimate "genes" and "logical starting point" for all structured existence and dynamic evolution in the cosmos of *Relatedness Theory*.

A core question then arises: these PVs, carrying "inherent necessary propensities" and whose potential range of relatedness and influence is, in principle, "bidirectionally potentially infinitely extensible"—when they begin to undergo the most primordial interactions against the universal background of "Pure Being's" eternal intrinsic fluctuations, does this interaction itself intrinsically and necessarily entail a universal organizing principle? What constitutes the unified operational logic and intrinsic "grammar" for the cosmos of *Relatedness Theory*, from the most microscopic potentiality interactions to the complex evolution of the most macroscopic "Relatedness Systems (RSs)"?

To answer this fundamental question, *Relatedness Theory* introduces the core concept of the "Global Bidirectional Self-Organization (BSO) mechanism." However, this chapter will undertake a profound "reshaping of BSO's ontological status." BSO is not merely some "advanced" systemic organization or regulatory "mechanism" that appears only after the "Commonality Self-Activation Mechanism (CSAM)" has given rise to

the first "Commonality Reference (CR)" and the "Dependency Path (DPs)" network has initially formed. On the contrary, this chapter will reveal that BSO is the "logical genesis" directly originating from the "bidirectional potential infinite extensibility" and "inherent necessary propensity" of "Primordial Vectors (PVs)" and their interaction; it is a more fundamental, more universal organizing principle and dynamic essence in *Relatedness Theory* than CSAM (CSAM itself can be seen as a concentrated manifestation of BSO at a specific stage). It is not a later-evolved "manifestation of relation," but "the logical genesis necessarily possessed by the interaction of Primordial Vectors."

This chapter, starting from the most primordial ontological posits of *Relatedness Theory*—especially the infinity and eternal intrinsic fluctuations of "Pure Being," and the "bidirectional potential infinite extensibility" and "inherent necessary propensity" of "Primordial Vectors (PVs)"—will reveal, through rigorous logical deduction from basic principles, the necessity, universality, and core characteristics (globality, bidirectionality, self-organization, mutual construction) of BSO. Furthermore, this chapter will systematically elucidate how BSO, as a fundamental organizing principle and universal mode of operation permeating all core concepts of *Relatedness Theory* (from the operation of CSAM, the emergence and reconstruction of CRs, the weaving and evolution of DPs, the manifestation and interaction of REs, the delineation and synergy of RLs, to the maintenance of RSs, the generation of v, the operation of EEP, and the unfolding of EEA), ultimately demonstrates the indisputable, absolute core pivotal status it occupies in the entire cosmic tableau of *Relatedness Theory*. This more fundamental understanding of BSO is key to grasping how "Relational Reality," starting from the faintest interactions of potentiality, spontaneously, continuously, and hierarchically generates, organizes, and evolves into the complex world we experience.

12.1 Fundamental Ontological Roots of BSO: The Interactive Logic of "Primordial Vectors' (PVs)" "Bidirectional Potential Infinity" and "Inherent Necessary Propensity"

The "Global Bidirectional Self-Organization (BSO) mechanism" is not an externally added posit within the system of *Relatedness Theory*. Rather, it emerges logically and necessarily from its most fundamental ontological cornerstones—the infinite dynamism of "Pure Being" and the core characteristics inherent in "Primordial Vectors (PVs)" as its potential distinguishable units.

12.1.1 The Infinite Dynamism of "Pure Being": The Eternal "Stage of Possibility" and "Source of Perturbation" for BSO to Occur

Relatedness Theory establishes that "Pure Being" is the sole, infinitely rich totality of potentiality. Its infinity prevents it from maintaining absolute stasis; instead, it intrinsically and ontologically contains eternal, minute, non-directional random fluctuations.

These eternal intrinsic fluctuations, originating from the deepest essence of "Pure Being," provide the most primordial, most universal "source of possibility" and continuous "microscopic perturbation background" for any form of "interaction" and "change" in the cosmos. It is like an ever-uncalm "ocean of possibilities," making possible the continuous, probabilistic "contact" and "mutual perception" (at an abstract, non-conscious, logical level) between "Primordial Vectors (PVs)." This is one of the eternal "stages" and "dynamic sources" for BSO to germinate and continuously operate.

12.1.2 The "Bidirectional Potential Infinite Extensibility" of PVs: The Ontological Cornerstone of BSO's "Bidirectionality"

Core Elucidation: Each "Primordial Vector (PV)," as a "degree of freedom of potentiality" or a carrier unit of "inherent necessary propensity" logically distinguishable from "Pure Being," its potential scope of relatedness and capacity for influence are not, in the ontological posits of *Relatedness Theory*, confined to a finite region or a specific future direction. On the contrary, each PV possesses a "bidirectional potential infinite extensibility." This means that a PV's "logical antecedents" (i.e., the deeper "Pure Being" potentiality structures or

potential relations with other PVs upon which its being "distinguishable" and possessing a specific "propensity" depend) and its "logical consequents" (i.e., the influences it might produce once its "propensity" is activated and expressed, the DPs networks it might participate in forming, and the "future possibilities" of more complex structures it might contribute to) are, in principle, infinitely open and extensible, permeating the entire infinite potentiality background of "Pure Being." We cannot a priori set an absolute starting point or endpoint for any PV's "chain of influence" or "network of relatedness."

Any finite structure manifested from "Pure Being" (e.g., a "Relatedness System, RS" or any element within it), no matter how independent or clearly bounded it may seem, can only be regarded as situated in the "middle section" of these "potentially infinitely long rays of propensity" (PVs, this is a metaphor).

This fundamental "intermediacy" means that said finite structure is necessarily subject to potential influences transmitted from two "directions" along its constituent PVs' "bidirectionally potentially infinitely extending" "manifestation dependency chain" (i.e., logically "antecedent" specificatory influences) and "manifestation influence chain" (i.e., logically "consequent" possibility feedbacks). Furthermore, its own state changes will also simultaneously produce potential influences towards these two "infinitely extending directions." This constitutes the most fundamental, ontological-level source of BSO's "bidirectionality." This "bidirectionality" is an inherent attribute of PVs as localized, distinguishable manifestations of "Pure Being's" potentiality; it pre-exists any specific, formed "feedback loop" or "interaction mechanism" and is the deeper basis for the latter's possibility.

12.1.3 The "Inherent Necessary Propensity" of PVs: The Initial Logical Drive for BSO's "Self-Organization" and "Mutual Construction"

According to the definition of PVs in *Relatedness Theory* (originating from Chapter 2), each PV possesses its "inherent necessary propensity," i.e., its unique "way or potentiality of existence and interaction." This is the prerequisite for it to be logically "distinguishable" from "Pure Being" and to participate in subsequent relation generation. This "propensity" itself implies that a PV is not an inert "point" but possesses an intrinsic property of "tending towards..." or "being capable of..." engaging in specific types (possibly extremely

generalized and basic) of interaction with other PVs or with the fluctuations of "Pure Being."

When these PVs, carrying "inherent necessary propensities," undergo the most primordial "intersection" (i.e., some most basic interaction or mutual perception occurs between them, even if merely a probabilistic "proximity" and mutual "superposition" of influence brought about by "Pure Being" fluctuations) under the action of "Pure Being's" eternal intrinsic fluctuations, they will necessarily influence, specify, and shape each other in a manner consistent with their "inherent necessary propensities."

This most primordial, universally existing, continuously ongoing process of mutual influence and co-shaping, based on PVs' "inherent necessary propensities" and "Pure Being" fluctuations, is BSO in its most fundamental, most ontological manifestation. It does not depend on any formed "Commonality Reference (CR)" or specific "Dependency Path (DPs)" network but is the intrinsic logical and dynamic basis for "Relational Reality" to germinate and be structured from "Pure Being" potentiality. The "inherent necessary propensities" of PVs provide the initial "selection rules" and "interaction directions" (where "direction" here refers to some preference in abstract "possibility space") for this most primordial BSO, thereby ensuring that PV interactions are not entirely random, fruitless collisions, but can spontaneously tend towards forming some (possibly extremely faint and transient) nascent "organization" or "relational pattern."

12.1.4 BSO as the "Logical Genesis" of PV Interaction: Summary and Positioning

In summary, the most profound and fundamental origin of the "Global Bidirectional Self-Organization (BSO) mechanism" in *Relatedness Theory* can be directly traced back to the three most primordial ontological posits of *Relatedness Theory*:

1. The infinity and eternal intrinsic fluctuations of "Pure Being": Provide the infinite possibility space and continuous, universal source of perturbation for BSO to occur.

2. The "bidirectional potential infinite extensibility" of "Primordial Vectors (PVs)": Establishes the ontological basis for BSO's "bidirectionality," such that any PV or its manifested structure is in the "intermediate link" of a potentially infinite "chain of manifestation dependency and influence."

3. The "inherent necessary propensity" of "Primordial Vectors (PVs)": Provides the initial logical drive and selection rules for BSO's "self-organization" and "mutual construction," enabling PV interactions to produce non-trivial results tending towards some (possibly extremely rudimentary) organization.

Therefore, BSO is not some "advanced" "mechanism" for coordinating pre-existing structures that appears only after CSAM, CRs, DPs, etc., have formed. On the contrary, BSO is the "logical genesis" and "dynamic essence" intrinsic to "Primordial Vectors (PVs)" themselves and their interaction against the background of "Pure Being." It is the most universal organizing principle and mode of operation that "relation" must follow to germinate from the faintest interactions of potentiality, grow, and ultimately form complex "Relational Reality" networks. The emergence and operation of all subsequent core concepts of *Relatedness Theory* (such as CSAM, CR, DPs, REs, RLs, RS), as well as core dynamic processes (such as the generation of v, the operation of EEP, the unfolding of EEA), must be understood as occurring under the continuous action and shaping of this more fundamental BSO, which originates from the interactive logic at the PV level.

12.2 Further Deepening of BSO's Core Characteristics: Globality, Bidirectionality, Self-Organization, and Mutual Construction (Originating at the PV Level)

The "Global Bidirectional Self-Organization (BSO) mechanism," as a universal organizing principle originating from the most fundamental characteristics of "Primordial Vectors (PVs)" and their interactive logic against the background of "Pure Being," its core characteristics—globality, bidirectionality, self-organization, and mutual construction—thereby acquire a more profound connotation, directly established at the ontological level. These characteristics do not manifest only after macroscopic structures have formed but exist as the basic "grammar" of "Relational Reality's" operation from the very beginning of PVs' microscopic potential interactions.

12.2.1 The Root of "Globality" and "Ubiquity": The Universal Relational Basis Established by PVs' "Bidirectional Potential Infinite Extensibility"

The "globality" of BSO does not imply the existence of a central dispatching unit exercising unified control over all PVs or their manifested structures, nor does it mean its influence can instantaneously

and without attenuation permeate the entire infinite domain of "Pure Being." On the contrary, its "globality" and "ubiquity" are rooted in the profound ontological posit of the "bidirectional potential infinite extensibility" of "Primordial Vectors (PVs)."

Since the "logical antecedent manifestation dependency" and "logical consequent manifestation influence" of each PV are, in principle, infinitely open and extensible, this means any given PV potentially constitutes a vast, latent "network of relational possibilities" with other (possibly infinitely many) PVs in the "Pure Being" background.

Therefore, when any two or more PVs undergo the most primordial "intersection" or interaction due to "Pure Being" fluctuations and their "inherent necessary propensities," the influence produced by this local interaction (however faint) has, in principle, the potential to, through this potentially infinitely extensible PV "network of relational possibilities," in some (possibly extremely indirect and complex) way, latently and probabilistically affect the "propensity expression" of other (seemingly distant and unrelated) PVs in the "Pure Being" background or their possibility of participating in subsequent BSO processes.

This "universal potential relatedness," established by the "bidirectional potential infinite extensibility" of PVs, is the ontological basis for the "globality" and "ubiquity" of BSO's influence. It means that the "Relational Reality" of *Relatedness Theory*, from its most microscopic potentiality level, is, in principle, a "globally connected" (though the activation of specific connections is probabilistic and conditional) whole. Any local BSO process (PV interaction) is not an entirely isolated event but a "ripple" latently possessing the possibility of influencing the "globe" (all other potentially related PVs).

12.2.2 Ontological Basis of "Bidirectionality" and "Mutual Construction": The Inevitable Result of PVs' "Intermediacy" and Interactive Logic

Ontological root of "Bidirectionality":

Directly originates from the reciprocity of the most basic interactions between PVs. When PVs influence each other due to their "inherent necessary propensities," this influence is necessarily mutual. A PV's "propensity expression" or state change will affect other PVs interacting with it, and vice versa.

More profoundly, the ontological fact that each PV is situated in the "middle section" of its "bidirectionally potentially infinitely extending"

"chain of manifestation dependency and influence" determines that it is both a convergence point for its "logical antecedent" influences and a divergence point for its "logical consequent" influences. This "intermediacy" that "links past and future" is the universal structural basis for BSO's "bidirectionality."

Ontological basis of "Mutual Construction":

"Mutual construction" begins at the PV level. The interaction of PVs (BSO's microscopic process) is not merely a simple exchange of information or change of state, but a process of mutual shaping and co-evolution.

In the most primordial BSO interactions, PVs' "inherent necessary propensities" will mutually "probe," "match," and "select" (where "probe," "match," and "select" here are all descriptions of mechanistic, non-conscious dynamic processes). This process itself will gradually "clarify" or "stabilize" certain specific "interaction modes" or "commonality rules." These initially emergent, possibly extremely simple and unstable "rule prototypes" (e.g., certain PV combinations are more likely to form temporary relations, while certain combinations repel each other) can be considered the initial germination of "potential commonality labels" or the earliest precursors of CRs.

And these "rule prototypes" or "structural preferences," initially emerging in early BSO interactions, once formed (even if temporarily), will in turn become more specific "references" and "constraints" for subsequent BSO operations between PVs, influencing their further interaction modes and organizational patterns.

This constitutes an unceasing "cycle of mutual construction"—originating from the most basic interactive logic of PVs' "inherent necessary propensities," through the continuous operation of BSO—where rules and processes, structures and dynamics, mutually generate, mutually define, and mutually reinforce each other. This "mutual construction" is the core dynamic mechanism for the evolution of the cosmos in *Relatedness Theory* from simplicity to complexity, from disorder to order, and its foundation is already laid at the PV level.

12.2.3 Thorough Implementation of "Self-Organization": Inevitable Emergence from the Intrinsic Characteristics of PVs and the Universal Background of "Pure Being"

The "self-organization" of BSO is one of its most fundamental characteristics, profoundly reflecting *Relatedness Theory's* thorough bracketing of any form of external designer or central controller.

The operation of BSO depends entirely on the most basic, most primordial ontological posits of *Relatedness Theory*:

1. The infinity and eternal intrinsic fluctuations of "Pure Being": Provide the universal "stage of possibility" and continuous "source of random perturbation" for BSO to occur.

2. The "bidirectional potential infinite extensibility" of "Primordial Vectors (PVs)": Establishes the ontological basis for BSO's "bidirectionality" and "global potential relatedness."

3. The "inherent necessary propensity" of "Primordial Vectors (PVs)": Provides the initial logical drive and selection rules for BSO's "self-organization" (PVs spontaneously interacting according to their intrinsic propensities) and "mutual construction" (the results of PV interactions influencing subsequent interaction rules).

The emergence of order and structure (from the initial germination of DPs to the formation and evolution of complex RSs) are all results spontaneously, probabilistically, and mechanistically produced by PVs based on these intrinsic characteristics and universal background, through BSO as an intrinsic, decentralized, distributed network dynamic process. The "self-organization" of BSO is the fundamental guarantee that the "genesis" and "evolution" of the cosmos in *Relatedness Theory* do not depend on any external intervention.

12.3 Universal Manifestation and Fundamental Shaping Role of BSO in Relatedness Theory's Core Concepts and Dynamic Processes

The "Global Bidirectional Self-Organization (BSO) mechanism," as a universal organizing principle originating from the most fundamental interactive logic of "Primordial Vectors (PVs)," its role is not confined to a specific stage or level. Instead, like a "red thread" running throughout, it profoundly influences and shapes the emergence, definition, and operation of all core concepts in *Relatedness Theory*, as well as the unfolding of all core dynamic processes. Understanding this pre-existence and fundamentality of BSO is key to grasping the internal unity of the entire theoretical edifice of *Relatedness Theory*.

12.3.1 CSAM as a Specific Manifestation of BSO in the Structural Origin Phase

The "Commonality Self-Activation Mechanism (CSAM)"—whether it is generating preliminary "information foci" or "seed foci" in the "Pure Being" potentiality background through "Superpositional Emergence," or emerging the first stable "Commonality Reference (CR)" based on latent "structural commonality" between PVs via a dynamic process of "positive feedback and relational lock-in" through "Entangled Stabilization"—its entire operational process profoundly embodies the specific operational mode and concentrated manifestation of BSO (originating from the interactive logic of PVs' "bidirectional potential infinite extensibility" and "inherent necessary propensity") during the "genesis" stage when the cosmos manifests its first stable structure from a pure potentiality background.

Key stages in CSAM such as "commonality matching," "probabilistic activation," and "positive feedback lock-in" are all concrete processes of PVs interacting, mutually selecting, mutually influencing, and self-organizing into order, based on their "inherent necessary propensities" and ("potential commonality rules" gradually clarified in early BSO interactions), through bidirectional (or multidirectional) means. CSAM is BSO's "highlight performance" at the specific historical moment of structural origin.

12.3.2 The Emergence of CRs, Definition of Rules, and Formation of "Defining Fields" are Phased Products of BSO

The "commonality rules" solidified by "Commonality References (CRs)" (especially the core CRO defining a "Relatedness System, RS," and the SROs defining "Relatedness Levels, RLs" within an RS) and the "Defining Fields" they form (passively and structurally influencing the activation and organization of DPs within their sphere of action) are themselves the results of PVs interacting, screening, and stabilizing through the BSO process (initially manifested as CSAM, subsequently as continuous PV interaction and network evolution under the constraint of formed CRs).

Furthermore, once a CR is formed, the rules it defines become a more specific "constraint framework" and "referential standard" for subsequent BSO operations within its RS. BSO operations will tend (in a probabilistic and dynamic sense) to form DPs networks and REs patterns compatible with those CR rules. Simultaneously, a CR itself is not absolutely static; it will also be influenced "bottom-up" by the collective behavior of the DPs network and REs it organizes via the BSO mechanism, and may thereby undergo adjustment or evolution (i.e., CR "displacement"). This is precisely a manifestation of BSO's mutual constructivity.

12.3.3 The "Responsive Weaving" of DPs Networks and the "Projection" and Manifestation of REs are All Continuous Operations of BSO

Under the action of a CR's "Defining Field," the "responsive activation" and "responsive weaving" processes of "Dependency Path (DPs)" networks, as well as "Relative Entities (REs)" as stable phenomenal patterns manifested from DPs networks under specific CR (SRO/CRO) "projection rules," are all results of continuous bidirectional matching, mutual selection, and self-organizing stabilization between PVs (constituting DPs) and between DPs network patterns and CR "projection rules," under the reference and constraint of CR rules, through the BSO mechanism.

The topological structure, connection strengths, and transmission attributes of DPs networks, as well as the forms, attributes, and behavioral patterns of REs, are all products of BSO's dynamic operation. Moreover, once formed, they in turn become "participants" and "sources of influence" for subsequent BSO (e.g., interactions between REs, coordination within RLs).

12.3.4 The Hierarchical Delineation of RLs and the Holistic Maintenance of RSs Both Depend on BSO's Trans-Scale Operation

The delineation of "Relatedness Levels (RLs)" (defined by different SROs) within a complex RS and their synergistic operation, as well as the adaptability and stability exhibited by the RS as a whole when facing internal and external changes, all completely depend on the continuous operation of BSO at different levels (from microscopic PV interactions to mesoscopic REs/DPs network organization to macroscopic CR emergence and interaction) and different scales (within RLs, between RLs, between RS and ARO).

BSO's "bottom-up emergence" (e.g., the synergistic operation of multiple SROs and the RLs they define supporting the function of a CRO and the holistic characteristics of an RS) and "top-down modulation" (e.g., a CRO's macroscopic rules and EEP state constraining and guiding the operation and evolution of its internal SROs/RLs), as well as "horizontal synergy" and "co-evolution" between RLs/RSs, are all concrete manifestations of BSO constructing and maintaining these hierarchical, modular organizational structures.

12.3.5 The Four Ontological Roots of "Evolutionary Rate (v)" All Act upon an RS via the BSO Mechanism

In Chapter 10, we detailed the four ontological roots of an RS's intrinsic "evolutionary rate (v)": Infinite Potentiality Pressure (IPP), Incompleteness of Foundation (IoF), Fluidity of Internal Relations (FIR), and Open System Adaptation (OSA).

These four pressures or tensions do not directly "drive" RS change in some mysterious way. Instead, they must be perceived, transmitted, processed, interact, and ultimately collectively contribute to the overall transformative propensity v within the RS through BSO, this universal "relational dynamic" and "mutual construction logic."

For example, the "potentiality perturbations" and "traction effect" produced by IPP on an RS's boundary and internal DPs network via the "Pure Nothingness" interface are "responded to" and "absorbed" by the RS's structure via the BSO mechanism, and may be transformed into internal structural adjustments.

The "logical and structural tension" endogenously generated by IoF also triggers "friction," "conflict," or "mismatch" between different

rule levels or operational links within the RS via the BSO mechanism, driving the system to adjust and explore through BSO.

FIR, representing the continuous microscopic dynamics of DPs/REs, is itself a manifestation of BSO at the microscopic level, and an RS's management and integration of this fluidity also depend on higher-level BSO operations.

The external environmental changes and co-evolutionary pressures brought by OSA influence an RS's internal v through BSO interactions (information exchange, relational adjustment) between the RS and the external.

Therefore, BSO is the operational platform and transmission pathway through which the four roots of v concretely and mechanistically act upon an RS and produce an overall transformative propensity.

12.3.6 The Operation of EEP and Transitions on the EEA as Macroscopic Histories of BSO's Holistic Self-Organizing Reconstruction When an RS Faces Fundamental Contradictions

The "Existence-Evolution Paradox (EEP)" (the conflict between an RS's intrinsic v and its core CR's T_CR/h(T), operating under the C_max constraint) provides a continuous "tensional background" and "selection pressure" (where "selection" here still refers to dynamic screening, not teleological) for BSO's operation.

The evolutionary history of an RS along its "Existence-Evolution Axis (EEA)," each fundamental "displacement" of its core CR (i.e., transformation of its "existence basis"), is a macroscopic historical record of the BSO mechanism, driven by EEP, undertaking the most profound and thorough self-organizing adjustment and reconstruction of the RS's overall structure and rules.

During an EEA "stable period," BSO, through continuous internal adjustments and interaction with the environment, strives to maintain the RS's transient equilibrium and the stability of its core CR under the tension of EEP.

When EEP contradictions intensify, leading to the destabilization of the old CRO (an EEA "transition node"), BSO will govern the RS through a chaotic exploratory period and, possibly with the participation of a reactivated CSAM (as a specific form of BSO), probabilistically and self-organizedly give rise to a new core CR' from "Pure Being/Pure

Nothingness" potentiality, thereby achieving the "displacement" and "paradigm shift" of the RS's "existence basis."

EEP and EEA profoundly reveal that BSO's operation is not always smooth or gradual but is filled with non-linear, abrupt, contingency-laden "structural phase transitions" and "historical creation."

12.4 BSO's Fundamental Shaping of Relatedness Theory's "View of Causality": From Linear Chains to a Networked, Hierarchical, Bidirectionally Potentially Infinite Process of Mutual Construction

The "Global Bidirectional Self-Organization (BSO) mechanism," as the "logical genesis" originating from the "bidirectional potential infinite extensibility" and "inherent necessary propensity" of "Primordial Vectors (PVs)" and their interaction, its universal existence and mode of operation fundamentally determine that *Relatedness Theory's* conception of causality must transcend traditional linear chain models, presenting instead as a networked, hierarchical, and bidirectionally potentially infinite process of mutual construction.

Based on the understanding of BSO originating from the "bidirectional potential infinity" of PVs, to elucidate why *Relatedness Theory's* view of causality is necessarily non-linear, networked, hierarchical, and a bidirectionally potentially infinite process of mutual construction:

Non-linearity and Networked Nature: Because each PV possesses "bidirectional potential infinite extensibility," its potential relations and influences can propagate in all "directions" (logically antecedent and consequent) along innumerable possible "Dependency Paths (DPs)" (these DPs themselves also being the result of BSO "weaving" under specific conditions). Therefore, any single "event" (i.e., a state change of some "Relative Entity, RE" or the activation/deactivation of some DP) is not isolated. It is both the convergent result of innumerable "upstream" (logical antecedent manifestation dependency) PVs interacting via BSO, and it may also, via BSO, produce complex multiple influences on innumerable "downstream" (logical consequent manifestation influence) PVs. The transmission of this influence is not a singular, linear chain, but more like the wave-like diffusion, superposition, interference, and feedback of influence within a highly complex, dynamically evolving DPs network.

Hierarchical Nature: BSO's operation spans different "Relatedness Levels (RLs)" and "Relatedness Systems (RSs)." A "causal event" occurring within a certain RL (defined by a specific SRO), its "cause" may partly originate from the BSO dynamics within that RL, but it may also be subject to "top-down" rule modulation from its encompassing RS's core CRO, or constrained by the background of a broader "Encompassing/Inclusive Commonality Reference (ARO)" that contains

that RS. Similarly, the "effect" of this "causal event" may not be limited to that RL but may, via the BSO mechanism, influence higher-level CRs or RSs "upwards," or horizontally influence other related RLs.

Bidirectionally Potentially Infinite Process of Mutual Construction: Given the "bidirectional potential infinite extensibility" of PVs, any "causal event" is merely a local, transient node in this infinitely extending BSO "web of relations." We can never trace back to its absolute "first cause" (because it can always be traced back to the interaction of even more antecedent PVs, which are also in an infinitely extending chain), nor can we predict all its "ultimate effects" (because its influence will diffuse along infinite potential paths of relatedness). More importantly, under BSO's logic of mutual construction, the roles of "cause" and "effect" are not fixed; they mutually shape each other in continuous interaction. An event is both an "effect" (shaped by its antecedent BSO processes) and a "cause" (participating in shaping subsequent BSO processes).

Any "causal event" we observe is merely a local, transient "slice" of this universal BSO network, or a relative manifestation under a specific CR "projection":

When we attempt to identify and describe a "causal event," we (as cognitive subjects, ourselves being RSs possessing internal cognitive CRs) are necessarily "excising" and "manifesting" a finite, relatively simplified "relational pattern" from the infinitely complex BSO network, under the "projection rules" of a specific "Commonality Reference (CR)" (e.g., our chosen scale of observation, analytical framework, theoretical model).

The clarity and directionality of the "causal chains" we perceive are largely shaped by the "definitional power" and "projection preferences" of the CR we select. Different CRs (e.g., a microscopic physical CR versus a macroscopic biological CR) might "project" seemingly entirely different "causal narratives" from the same underlying BSO network.

Therefore, any observable and describable "causal event" is merely a relative, local, transient manifestation of the universal BSO network within a specific referential framework, not a complete presentation of BSO's full complexity and potential infinite relatedness.

The profound meaning of "the middle of the causal chain, not its beginning or end": Emphasizes that from BSO's perspective, there is no absolute "first cause" or "final effect"; any element is simultaneously part of the "effect" of other elements' influence and part of the "cause" influencing other elements.

This profound metaphor of "the middle" gains a more solid ontological

basis from the understanding that BSO originates from the "bidirectional potential infinity" of PVs.

Since each PV is in the "middle section" of its "bidirectional potential infinite extensibility," then any DP, RE, RL, or RS constituted by these PVs via BSO must also inherit this "intermediacy."

This means that in the cosmic tableau of *Relatedness Theory*, there is no absolute "first cause" external to the BSO network that initiates everything, nor is there an absolute "final effect" that terminates all BSO processes.

Any "cause" or "effect" we attempt to analyze is merely a "relay station" or "transformation node" in this unceasing, universally operating BSO network. It both receives influences from its "logical antecedents" (infinitely extending) of innumerable BSO processes and participates in shaping innumerable BSO processes of its "logical consequents" (infinitely extending).

This "decentralized" and "processual" understanding of "causality" is BSO's fundamental subversion of the traditional linear view of causality and also a necessary inference of *Relatedness Theory's* "primacy of relations" ontology at the dynamic and epistemological levels.

12.5 Philosophical Implications of BSO: As the Meta-Logic of "Relational Reality's" Operation and the Unified Dynamic Tableau of the Cosmos in Relatedness Theory

The "Global Bidirectional Self-Organization (BSO) mechanism," as a universal organizing principle originating from the most fundamental characteristics of "Primordial Vectors (PVs)" and their interactive logic against the background of "Pure Being," its proposal is not merely to explain how "Relatedness Systems (RSs)" operate. It also entails a series of profound philosophical implications, constructing for *Relatedness Theory* a truly unified dynamic tableau from microscopic potentiality interactions to macroscopic system evolution.

BSO, as the "interactive logic" originating from the most fundamental characteristics of PVs, provides *Relatedness Theory* with a truly unified dynamic tableau from microscopic potentiality interactions to macroscopic system evolution:

BSO unifies all core concepts of *Relatedness Theory* (from PVs, CSAM, CR, DPs, REs, RLs, to RS) and core dynamic processes (the generation of v, the operation of EEP, the unfolding of EEA) under its universal "relational dynamics" and "principle of mutual construction." It reveals that these seemingly different phenomena at different levels and stages all follow the same intrinsic organizational logic originating from the "bidirectional potential infinite extensibility" and "inherent necessary propensity" of PVs.

This provides the most fundamental "grammatical rules" and "operational blueprint" for *Relatedness Theory's* pursuit of a "formula of existence" capable of uniformly explaining the generation of being, the emergence of structure, and the regularities of evolution.

It profoundly embodies *Relatedness Theory's* "primacy of relations" ontology, its processual view of existence, and its systematic explanation for the emergence of complex phenomena:

The ultimate embodiment of "primacy of relations": BSO operates from the PV level, emphasizing that "interaction" and "mutual determination" precede any fixed "entities" or "structures," serving as the fundamental impetus for the formation of "Relational Reality."

Processual view of existence: "Existence," from BSO's perspective, is not a static "is," but an unceasing process of "becoming" through universal interaction and co-shaping. Any structure is merely a transiently stable pattern in BSO's dynamic process.

Systematic explanation for the emergence of complex phenomena: Various ordered structures and phenomena in the cosmos, from simple to complex (such as the hierarchy of CRs, the diversity of RSs, the emergence of life, the generation of consciousness), can all be understood as complex results emerging from BSO's probabilistic, non-teleologically directed self-organizing processes at different scales and under different constraints.

Understanding BSO requires us to thoroughly abandon traditional entity-based theories, reductionism, and linear causal thinking, and to embrace a worldview where all things are related, all things are processes, and all things are generated and evolve in universal mutual determination and co-shaping:

This implies we need a new "relational thinking paradigm," where, in analyzing any phenomenon, we first focus on the BSO network it is situated in, its interdependent relations with other elements in the network, and the internal and external BSO interactions driving its changes.

This shift in thinking paradigm may hold significant enlightening implications for our understanding and response to many complex challenges facing the world today (such as climate change, global pandemics, social conflicts, etc., all of which are highly interconnected, multi-feedback complex system problems).

Brief responses concerning BSO and the issues of "time" and "efficiency/optimization":

BSO and "time": The continuous operation of BSO (the "intersection" and mutual influence of PVs) itself constitutes the occurrence of "events" and the unfolding of "processes"; it is the direct manifestation of "change." In the context of *Relatedness Theory's* quest for the emergence of intrinsic time, BSO's "operational rhythm" at different levels, or the "logical depth of structural reconstruction" accumulated as it propels an RS along its EEA, might be key elements constituting "intrinsic time" or "Existence-Evolution Axis time." Time in *Relatedness Theory* may not be an external, uniformly flowing parameter, but some intrinsic "tempo" or "measure" of BSO itself, this fundamental organizing process of the cosmos.

BSO's "efficiency" or "optimization" (within a non-teleologically directed framework): Different RSs, due to differences in their core CR rules, the topological structures of their internal DPs networks, or their varying EEP states, may indeed exhibit significant differences in their BSO's "dynamic characteristics" (e.g., the "rate" of achieving some transient stability, the "cost" required to maintain that stability, or "robustness"

against specific types of perturbations). In the long-term evolution along the EEA, those modes whose PV "propensity ray" combinations and BSO operational modes (shaped by their CR rules) happen to enable their RS to maintain its existence more "robustly" under specific EEP constraints and ARO environments may, statistically, be more likely to be "preserved" and serve as a basis for subsequent evolution. This is not BSO or RS "purposefully" "optimizing" itself, but a natural result of a universal "dynamic screening" process in the cosmos of *Relatedness Theory*, based on "the sustainability of existence and evolution."

12.6 Chapter Summary: "Global Bidirectional Self-Organization (BSO)"—The Eternal Dynamic and Fundamental Organizing Principle, Rooted in the Interactive Logic of the Bidirectional Potential Infinity and Inherent Necessary Propensity of "Primordial Vectors," Shaping All Manifestations of "Relational Reality"

This chapter has undertaken a profound reshaping of the ontological status and a further deepening of the core connotation of the "Global Bidirectional Self-Organization (BSO) mechanism." We have clarified that BSO is not merely a "mechanism" in *Relatedness Theory* describing how formed structures operate, but directly originates from the "logical genesis" of the infinite dynamism of "Pure Being" and the "bidirectional potential infinite extensibility" and "inherent necessary propensity" inherent in "Primordial Vectors (PVs)" as its distinguishable potentiality units, and their interaction. It is the most universal process of mutual determination and co-shaping, continuously occurring in all possible potential "directions."

We have detailed BSO's core characteristics—"globality" and "ubiquity" (originating from the universal potential relational basis established by PVs' "bidirectional potential infinite extensibility"), "bidirectionality" and "mutual construction" (originating from the reciprocity of the most basic interactions between PVs, PVs' "intermediacy," and the continuous mutual construction of rules and processes from the PV level), and "self-organization" (entirely dependent on the intrinsic characteristics of PVs and the universal background of "Pure Being," requiring no external designer)—all of which are profoundly rooted in the most primordial ontological posits of *Relatedness Theory*.

The core of this chapter lay in systematically demonstrating how BSO, as a pre-existing, foundational, universal organizing principle and ubiquitous mode of operation, permeates and fundamentally shapes the emergence, definition, and operation of all core concepts in *Relatedness Theory*, as well as the unfolding of all core dynamic processes: from CSAM as BSO's specific manifestation in the structural origin phase, to the emergence and rule definition of CRs, the weaving of DPs networks and manifestation of REs, the hierarchical delineation of RLs and holistic maintenance of RSs, then to the four ontological roots of "evolutionary rate (v)" acting upon RSs via the BSO mechanism, and the operation of

EEP and transitions on the EEA as macroscopic historical records of BSO's holistic self-organizing reconstruction when an RS faces fundamental contradictions.

Finally, we explored BSO's fundamental shaping of *Relatedness Theory's* "view of causality" (transforming it from linear chains into a networked, hierarchical, bidirectionally potentially infinite process of mutual construction), and the unified dynamic tableau provided for the cosmos of *Relatedness Theory* by BSO as the "meta-logic" of "Relational Reality's" operation.

In summary, "Global Bidirectional Self-Organization (BSO)" is the fundamental organizing principle and eternal dynamic universally applicable in the cosmic tableau of *Relatedness Theory*, from the most microscopic potentiality interactions to the most macroscopic system evolution. It is the ultimate, most thorough manifestation of the "primacy of relations" ontology at the dynamic level, and key to understanding how all things in the cosmos of *Relatedness Theory* spontaneously, continuously, and hierarchically generate, organize, and evolve into the complex world we experience, without central control or a presupposed blueprint. This more fundamental understanding of BSO, originating from the interactive logic at the PV level, provides the most solid cornerstone for the internal unity and logical self-consistency of the entire theoretical edifice of *Relatedness Theory*.

Chapter 13: Existence-Evolution Axis (EEA)—The Non-linear Historical Trajectory and Possibility Space of a "Relatedness System's (RS)" Core "Commonality Reference's (CR)" Fundamental "Displacement" of "Existence Basis," Driven by the "Existence-Evolution Paradox (EEP)"

13.0 Introduction: From the Eternal Operation of the "Existence-Evolution Paradox (EEP)" to the Inevitable Trajectory of a "Relatedness System's (RS)" Evolutionary History—The Proposal of EEA

In the theoretical system of *Relatedness Theory*, we have systematically elucidated that any finite "Relatedness System (RS)" necessarily and intrinsically possesses an "evolutionary rate (v)"—that is, an aggregate, intrinsic transformative propensity originating from its profound ontological condition, whose changes do not point to any presupposed goal. Furthermore, we have revealed that for any finite RS defined by its core "Commonality Reference (CRO)," the fundamental need to maintain the relative stability of its core CR for a certain "period of definitional power (T_CR)" in order to persist as an identifiable "unit of existence" with a specific identity, structure, and operational rules, exists in a fundamental, unavoidable, mutually constraining yet mutually dependent intrinsic tension with that RS's intrinsic overall "evolutionary rate (v)," which originates from its profound ontological condition (i.e., the combined action of the four roots: Infinite Potentiality Pressure (IPP), Incompleteness of Foundation (IoF), Fluidity of Internal Relations (FIR), and Open System Adaptation (OSA)) and drives it to deviate from the stable state currently defined by its CR and to explore new relational patterns or rule adjustments.

If EEP is the fundamental engine driving RS evolution, its eternal operation necessarily prevents an RS from permanently remaining in any specific stable state; instead, it must undergo periodic adjustments and reconstructions of its "existence basis." So, what historical imprint does this EEP-driven, fundamental transformation of an RS's "existence basis" leave over its long evolutionary course? How is this evolutionary history described and understood in *Relatedness Theory*? What characteristics

does it exhibit? Does the replacement of an RS's core CR follow any discernible pattern or logic?

To answer these core questions about the long-term evolutionary dynamics and historical trajectory of an RS, *Relatedness Theory* introduces the core concept of the "Existence-Evolution Axis (EEA)." The EEA is not a linear timeline in the traditional sense. Rather, it is specifically used to capture and describe the ordered historical trajectory of a series of fundamental, structural "displacements" (i.e., the old CR destabilizes and disintegrates, and a new CR' emerges through the "Global Bidirectional Self-Organization (BSO) mechanism" and the continuously active "Commonality Self-Activation Mechanism (CSAM)") experienced by an RS's CR (usually referring to its CRO) due to the continuous drive of intrinsic EEP, as well as an abstract representation of the "possibility space" explored by this evolutionary process.

This chapter, starting from the basic principles of *Relatedness Theory*, will meticulously elucidate the philosophical definition of EEA, its core characteristics (including its profound non-linearity, event-driven nature, historicity, path dependence, contingency, and creativity), its unique structure composed of "stable periods (plateau phases)" and "transition nodes," the fundamental dynamic mechanisms driving its formation (i.e., the eternal operation of EEP and the synergistic action of BSO/CSAM in CR reconstruction), and the profound correlation between EEA and other core concepts of *Relatedness Theory* (especially the "Principle of Relative Causal Restructuring"). It will finally explore the hierarchical nature of EEA, its possible relationship with "intrinsic time," and the statistical trends it might exhibit within a strictly non-teleologically directed framework. Through a systematic elucidation of EEA, we will provide a complete, logically self-consistent closure for the ontology and evolution theory of *Relatedness Theory*, presenting a cosmic evolutionary epic of an RS, driven by internal contradictions, continuously undergoing non-linear "displacement" and creative reshaping of its "existence basis.

13.1 Philosophical Demarcation of the "Existence-Evolution Axis (EEA)": The Ordered Historical Record of the "Displacement" of an RS's Core CR's "Existence Basis"

13.1.1 Precise Philosophical Definition of EEA

Within the philosophical principled system of *Relatedness Theory*, the "Existence-Evolution Axis (EEA)" is precisely defined as: the ordered sequence of fundamental, structural "displacement" events experienced by the Central Commonality Reference (CR) that defines the "existence basis" and fundamental operational rules of a "Relatedness System (RS)" (or, in more specific analysis, a core CR at a particular level within that RS, typically the top-level "Central Commonality Reference, CRO" defining the RS's overall identity and operational logic) throughout its entire (possibly infinitely extending) course of existence and evolution. These "displacements" are necessitated by the continuous drive of that RS's internal, eternal "Existence-Evolution Paradox (EEP)" and its operation under the constraint of its "existence-bearing capacity (C_max)." These "displacement" events specifically manifest as the old CR destabilizing and disintegrating due to the intensification of EEP contradictions, the system entering a chaotic exploratory period, and, through the synergistic action of the "Global Bidirectional Self-Organization (BSO) mechanism" and a possibly reactivated "Commonality Self-Activation Mechanism (CSAM)," a new CR' capable of temporarily alleviating the current EEP contradiction probabilistically emerging and stabilizing.

Therefore, the EEA is essentially the non-linear historical trajectory marking these fundamental transformative events of "existence paradigms." It is not merely a simple record of RS state changes but a profound historical presentation of the qualitative "displacement" of its "rule core" and "organizational principle" (i.e., its core CR) upon which it depends for existence. The EEA records the dynamic process by which an RS, under the eternal operation of EEP and fundamental existential constraints, continuously explores new "possibility spaces," sublates outdated "existence bases," and reshapes its own operational logic and identity.

13.1.2 Core Characteristics of EEA (as Logical Inferences from the Basic Principles of *Relatedness Theory*)

From the above philosophical definition of the "Existence-Evolution Axis (EEA)" and its logical position within the entire theoretical system of *Relatedness Theory*, we can deduce a series of its profound core characteristics. These characteristics are all rooted in the essence of "Commonality References (CRs)" (as stable relational structural patterns embodying specific "commonality rules"), their dynamic evolution driven by the "Existence-Evolution Paradox (EEP)," and the operational characteristics of the "Global Bidirectional Self-Organization (BSO) mechanism" and the "Commonality Self-Activation Mechanism (CSAM)":

Non-linearity & Event-Driven: The "progression" or "extension" of an EEA is not like traditional physical time, which flows uniformly or accumulates linearly. On the contrary, the morphology of an EEA is marked and driven by discrete, "qualitative" "Transition Nodes" where the rule system embodied by the core CR of a "Relatedness System (RS)" undergoes fundamental "displacement." Between these "Transition Nodes," there may exist relatively long "Plateau Phases," corresponding to periods when a specific core CR, within its "period of definitional power (T_CR)," allows the RS it defines to operate with relative stability. The evolution of an EEA is driven by these crucial, structural "CR rule system displacement events," not by smooth, continuous parameter changes.

Historicity & Path Dependence: The EEA trajectory of an RS is the record of its unique, irreversible evolutionary history. The specific direction of "displacement" (i.e., the probabilistic selection and stabilization of a new CR' rule system) that its core CR's embodied rule system underwent at a past "Transition Node" profoundly and irrevocably influences all its subsequent possible evolutionary paths and the regions it can explore in the abstract "CR possibility space." Events early on the EEA have far-reaching, path-dependent impacts on its subsequent evolutionary trajectory. The system's history cannot be easily erased or simply replayed.

Contingency & Creativity: Because the "displacement" process of the rule system embodied by a core CR (especially during the "chaotic exploratory period" after the disintegration of an old CR rule system and in the probabilistic emergence of a new CR' rule system via CSAM and BSO mechanisms) is filled with intrinsic random fluctuations, competition among multiple possibilities, and the uncertainty of self-organizing processes, the evolutionary path of an EEA is also fraught with contingency. At each "Transition Node," there exist multiple potential

new CR's (stable relational structural patterns embodying different rule systems) that could emerge; which CR' ultimately stabilizes is not uniquely determined by the preceding state. It is precisely this profound contingency that makes the EEA a creative process for an RS to explore different "existence possibilities" and to give rise to genuinely novel structures, rules, and "existence paradigms." The evolution of the cosmos (or any RS) is not a progression towards a singular, predetermined endpoint, but rather a tableau of exploration on the EEA, exhibiting infinite bifurcation, diversification, and immanent creative potential.

EEA as the evolutionary trajectory of the rule system embodied by the core CR in "CR possibility space": To understand EEA more vividly, we can conceptually regard it as the evolutionary trajectory of the rule system embodied by an RS's core CR within an abstract, possibly infinite-dimensional "Possibility Space of CRs." This "possibility space" is constituted by all potential stable relational structural patterns (i.e., all possible CRs) embodying different "commonality rules" that can emerge from "Pure Being" via BSO and CSAM mechanisms. Each "plateau phase" on the EEA corresponds to the rule system embodied by that RS's core CR being temporarily stabilized in a specific region of this "possibility space," a region representing a CR structure and rule organization mode capable of relatively effectively managing its internal "Existence-Evolution Paradox (EEP)" under that RS's current C_max constraint. Each "transition node," then, corresponds to the dynamic process whereby that core CR's embodied rule system, from one such transient stable region, after a period of unstable, BSO-driven exploratory path, "displaces" to another (possibly entirely different in rules and structure) new transient stable region.

These core characteristics collectively depict EEA as the unique and profound theoretical framework in *Relatedness Theory* for describing the long-term evolution of an RS and the fundamental transformation of its "existence basis" (i.e., the rule system embodied by its core CR).

13.2 Structural Morphology of EEA: Alternating Cycles of Stable Periods (Plateau Phases) and Transition Nodes

The "Existence-Evolution Axis (EEA)," as the non-linear trajectory recording the history of "displacement" of a "Relatedness System's (RS)" core "Commonality Reference's (CR)" "existence basis," is not itself a smooth, homogeneous curve. Instead, it exhibits a unique structural morphology composed of two distinct yet interrelated "terrains"—relatively enduring "stable periods (plateau phases)" and periods of intense transformation, "transition nodes"—alternating with each other. This alternating cycle is the necessary rhythmic manifestation of the "Existence-Evolution Paradox (EEP)" operating in the long-term evolution of an RS.

13.2.1 Stable Period (Plateau Phase)—Manifestation of a Specific CR's "Period of Definitional Power (T_CR)"

This corresponds to the relatively gentle, extended "plateau" regions on the EEA. During this period, a specific core CR (usually the top-level CRO defining that RS) is within its "period of definitional power (T_CR)," exhibiting relative stability and rule effectiveness. T_CR has not yet exhausted its capacity for self-maintenance due to the accumulation of EEP contradictions.

In this "plateau phase," the RS follows a relatively fixed set of "commonality rules," "operational logic," and "existence paradigm" defined by this core CR for the organization of its internal "Dependency Path (DPs)" network, the manifestation and interaction of "Relative Entities (REs)," and (relatively routine) exchanges of information and (generalized) energy with the external environment.

The primary role of the "Global Bidirectional Self-Organization (BSO) mechanism" during this period is, within the framework of that CR, through continuous internal adjustments (e.g., minor reorganization of the DPs network, adaptive changes in REs states, coordination of operations between internal "Relatedness Levels, RLs," and the management and dissolution of local tensions arising from certain sources of "evolutionary rate (v)"—such as FIR or milder IPP/OSA), to dynamically maintain the overall steady state of the RS and the stability of that core CR, thereby extending its effective T_CR as much as possible.

Phenomena such as the "constancy of physical laws," the "relative stability of biological species morphology," the "persistence of

social structures," or the "continuity of individual self-identity" in our daily experience can all be understood, in *Relatedness Theory*, as manifestations of an EEA "plateau phase" within the T_CR of some (possibly extremely long) macroscopic CR. However, this stability is relative, transient, and requires a continuous "maintenance cost (h(T))".

13.2.2 Transition Node—Fundamental "Displacement" of the Core CR's "Existence Basis"

This corresponds to "nodes," "turning points," or "mutation regions" of intense transformation on the EEA. During this period, the "Existence-Evolution Paradox (EEP)" within the RS—that is, the tension between its intrinsic "evolutionary rate (v)" and its core CR's "period of definitional power (T_CR)" and "maintenance cost (h(T))"—intensifies to a critical point under the constraint of its "existence-bearing capacity (C_max)." The current core CR can no longer maintain its stability; its T_CR exhausts its "definitional power."

This "transition node" usually comprises the following interrelated stages:

Chaotic Exploratory Period: Failure of Old CR Rule System and Re-release of Potentiality

The destabilization and disintegration of the old core CR lead to the loss of a unified organizational principle and stable "existence basis" for the RS's internal original DPs network structure and REs manifestation patterns. The system may exhibit a high degree of disorder, random breaking and recombination of DPs connections, rapid fluctuations or unpredictable behavior of REs patterns, and chaotic or unpredictable information transmission. This is a critical state, fraught with uncertainty, where "the old order is dead, the new order is not yet born."

During this phase, due to the collapse of the old CR's "Defining Field" and the failure of its "projection rules" for the "Pure Nothingness" background, a portion of the "Pure Being" potentiality previously "veiled" by the old CR's "Pure Nothingness"—including a large number of "Primordial Vectors (PVs)" with "relational propensities" incompatible with the old rules, as well as latent, previously suppressed DPs connection possibilities—gains the opportunity to be re-"scrutinized" and probabilistically "activated." The RS's boundary may become more blurred and permeable, and its interaction with "Pure Nothingness" (IPP)

may become more direct and intense, providing rich "raw materials" for the system to explore entirely new possibility paths.

Possible Reactivation of CSAM in CR Reconstruction and Germination of New DPs Networks

During the period when the old CR's structural constraints are lifted and the system's interactive interface with "Pure Nothingness" potentiality becomes more open and fluid, *Relatedness Theory* speculates that the "Commonality Self-Activation Mechanism (CSAM)" (or some variant adapted to a background with pre-existing partial structures, possibly relying more on "Superpositional Emergence" to provide "seed foci" and "Entangled Stabilization" for the rapid lock-in of already germinated "commonality patterns") may be "re-ignited."

At this time, CSAM's operational basis is no longer completely undifferentiated "Pure Being," but a potentiality background that has experienced structurization but is currently in a state of deconstruction and high plasticity (containing PVs and DPs fragments released after the old CR's disintegration, as well as newly activated PVs from "Pure Nothingness"). It may, based on residual "commonality information," newly activated PVs' "relational propensities," and new "seed foci" accidentally formed by the system in chaotic exploration (possibly catalyzed by continuous IPP action or the cumulative effects of FIR), probabilistically generate new DPs connections and potential CR candidate patterns. The reactivation of CSAM provides the BSO mechanism with diversified "structural possibility germinations" for selection and organization.

Probabilistic Emergence and Stabilization of a New CR' Under BSO Dominance: The Four Sources of v Jointly Shaping "Possibility Paths"

In the "chaotic exploratory period," through the continuous operation of the "Global Bidirectional Self-Organization (BSO) mechanism" (even after the old core "Commonality Reference, CR" disintegrates, BSO, as the fundamental organizing principle of "Relational Reality," still drives the system, non-teleologically, at local and global levels, to explore possible paths to new dynamic equilibria and ordered structures), and the interaction, competition, and synergy among the numerous "possibility germinations" (new "Dependency Path, DPs" connections and potential CR prototypes) produced by a possibly reactivated "Commonality Self-Activation Mechanism (CSAM)," a new

Central Commonality Reference CR' (which will possess its own "period of definitional power T'_CR," generalized "maintenance cost" h'(T'), and "existence-bearing capacity" C'_max characteristics), if the "commonality rule" system it embodies can more effectively manage the balance between the "evolutionary rate (v)" and T'_CR/h'(T') within the "Relatedness System (RS)" (which may have significantly changed due to the old CR's collapse) under its own C'_max constraint, may emerge with a certain probability and gradually stabilize, becoming the RS's new core CR (usually a CRO).

In this process of exploring and a new CR' emerging, the four ontological sources of the RS's intrinsic "evolutionary rate (v)"—namely:

the "traction" effect of "Infinite Potentiality Pressure (IPP)" on the RS's internal DPs network (after the old CRO disintegrates, the RS boundary becomes more open, and the structural influence of "possibility paths" with different "relational propensities" from the relative "Pure Nothingness" background on the RS's reorganizing internal DPs network becomes more direct and significant);

the "logical pain points" or unmet "structural demands" of the old CR rule system exposed by "Incompleteness of Foundation (IoF)" (which may make candidate patterns for a new CR' that happen to somehow "solve" or "bypass" these old "pain points" have a relatively higher stabilization probability or lower formation "threshold" in BSO's dynamic evolution);

the rich "structural diversity" and "exploratory attempts" possibly generated by "Fluidity of Internal Relations (FIR)" during the chaotic period;

and the responsive demand to (possibly changed) external environmental conditions from "Open System Adaptation (OSA)"

—will collectively, via the BSO mechanism, influence the "possibility direction" (in the abstract "CR possibility space") of the new CR''s emergence and the probability distribution of its eventual "selection" (dynamic stabilization into a new, stable relational structural pattern embodying specific rules).

This systemic reorganization and adjustment of the underlying DPs network, co-shaped by multiple internal and external factors, ultimately manifests as a "displacement" of the Commonality Reference (CR) embodied rule system, as its organizational core, in the "possibility space" of "Pure Being"—that is, its core commonality rules, its form as a

stable relational structural pattern, and its mode of operation undergo a fundamental transformation. This "displacement" is the RS's overall complex dynamic response to the pressure of its intrinsic "Existence-Evolution Paradox (EEP)" (after its core CR collapses due to EEP intensification, causing the RS's overall "activity intensity" Σ to reach its "existence-bearing capacity C_max"). It is the macroscopic result of its DPs network, driven by the "Global Bidirectional Self-Organization (BSO) mechanism," spontaneously and non-teleologically reaching a new, transient, dynamic stable state or organizational mode capable of more effectively managing its EEP balance under that RS's new C'_max constraint, through the combined action and probabilistic exploration of multiple internal and external factors (including the four sources of v).

13.2.3 Non-Strict Periodicity of Cycles and the Complex, Non-Teleologically Directed Morphology of Evolutionary Trajectories

The alternation of "stable periods (plateau phases)" and "transition nodes" on the "Existence-Evolution Axis (EEA)," while exhibiting a cyclical characteristic at the macroscopic level, is not a strictly deterministic periodic repetition.

Each emergence of a new core "Commonality Reference (CR')" (and the rule system it embodies) may bring a "period of definitional power T'_CR" (characterizing its stability), characteristics of a generalized "maintenance cost h'(T')", and a value for "existence-bearing capacity C'_max" that are entirely different from the previous old CR. Simultaneously, it will also bring entirely new "commonality rules" and "projection rules" (and their corresponding "identifiability thresholds"). All of this collectively opens up entirely new evolutionary possibilities and interaction modes for the "Relatedness System (RS)."

Because the emergence of a new CR' (via the "Global Bidirectional Self-Organization (BSO) mechanism" and possibly a reactivated "Commonality Self-Activation Mechanism (CSAM)") is fraught with profound contingency, sensitivity to initial fluctuations, and historical path dependence, the overall trajectory of the EEA is not a simple linear cycle. It is more likely to exhibit the following complex, strictly non-teleologically directed morphologies:

Possibility of spiral-like evolution (statistical, non-preset direction): In certain cases, if we can conceptually define some order parameter describing an RS's "efficacy in managing its intrinsic

'Existence-Evolution Paradox (EEP)'," "complexity of information integration and processing," or its "relative sustainability of 'existence basis' in a specific 'Encompassing/Inclusive Commonality Reference (ARO)' environment," and observe that after an RS undergoes multiple EEA "transitions," this order parameter, on certain specific evolutionary paths (due to BSO's dynamic screening and EEP's continuous pressure), happens to exhibit some statistical trend of cumulative "change" (e.g., a statistical "increase" or "decrease," but this by no means points to a presupposed "optimization" or "progress" goal), then the EEA's trajectory might macroscopically exhibit characteristics similar to "spiral-like" evolution. However, this must be strictly understood as a statistical phenomenon observed post hoc from long-term dynamic evolution and probabilistic event accumulation, not an intrinsic "purpose" or "direction" guiding the system.

Multi-bifurcating evolutionary paths (probabilistic selection and diversity manifestation): At certain "transition nodes" on the EEA (i.e., during the "chaotic exploratory period" after the old core CR rule system destabilizes), the system may face multiple potential new CR' candidate modes, all of which can, to some extent, satisfy its current EEP balance and C'_max constraint and could potentially emerge and stabilize. Due to the profound probability and sensitivity to minute perturbations in the final "selection" of the new CR' (i.e., which candidate mode can first achieve stability and dominate the system in BSO's dynamic evolution), this may cause the EEA's trajectory to "bifurcate" at these nodes towards different "possibility directions" (in the abstract "CR possibility space"), thereby manifesting the rich diversity and incomplete predictability of "Relatedness System (RS)" evolutionary paths.

This complex morphology exhibited by the EEA trajectory (whether possible spiral-like evolution or multi-bifurcating paths) profoundly embodies the intrinsic creativity, openness, and the fundamental characteristic that its changes do not point to any presupposed goal of cosmic evolution in *Relatedness Theory*.

13.3 Driving Mechanism of EEA: The Eternal Operation of EEP and the Synergistic Realization of BSO/CSAM

The "Existence-Evolution Axis (EEA)," this non-linear trajectory recording the history of "displacement" of a "Relatedness System's (RS)" core "Commonality Reference's (CR)" "existence basis," its own "progression" and morphological shaping do not originate from any external "arrow of time" or presupposed "evolutionary blueprint." Instead, they are jointly driven and realized by the intrinsic core dynamic mechanisms of *Relatedness Theory*—the eternal operation of the "Existence-Evolution Paradox (EEP)," and the synergistic action of the "Global Bidirectional Self-Organization (BSO) mechanism" and the "Commonality Self-Activation Mechanism (CSAM)" in the process of CR reconstruction.

13.3.1 EEP as the Fundamental Engine Driving EEA "Progression"

As detailed in Chapter 11, the "Existence-Evolution Paradox (EEP)"—that is, the fundamental conflict between an RS's intrinsic "evolutionary rate (v)" and its core CR's "period of definitional power (T_CR)" and "maintenance cost (h(T))", operating under the constraint of its "existence-bearing capacity (C_max)"—is the fundamental intrinsic impetus causing the core CR of any finite RS to necessarily, periodically (in a non-strictly deterministic sense) destabilize and reconstruct.

The "progression" of the EEA, i.e., the transition from one "stable period (plateau phase)" to the next, and the "transition node" (the "displacement" event of the core CR) in between, are the direct consequences of the accumulation and intensification of EEP contradictions, ultimately leading to the old CR being unable to maintain its existence basis. It is the eternal operation of EEP, like a tireless "engine," that drives an RS's core CR to continuously "migrate" in "possibility space," thereby unfolding this unique historical trajectory of the EEA.

13.3.2 BSO as the Core Organizing Principle for EEA Stable Period Maintenance and Transition Period Reconstruction

The "Global Bidirectional Self-Organization (BSO) mechanism," as the fundamental organizing principle and universal mode of operation permeating "Relational Reality," originating from the interactive logic of the bidirectional potential infinity and inherent necessary propensity of

"Primordial Vectors (PVs)," plays the core organizational and realizational role in every stage of the EEA:

During an EEA "stable period (plateau phase)": When a specific core CR temporarily governs an RS, the BSO mechanism, through continuous, all-encompassing mutual determination and modulation among the RS's internal constituent elements (its core CR, internal SROs/RLs, manifested REs, and the DPs network weaving them), dynamically manages and balances the tension of EEP. It strives to maintain the stability of that core CR (i.e., extend its T_CR) and the overall steady state of the RS (within the framework defined by its core CR), and makes adaptive adjustments to minor internal perturbations (such as FIR) and routine changes from the external environment (such as certain manifestations of IPP and OSA).

During an EEA "transition node" (i.e., the reconstruction period of the core CR): When EEP contradictions intensify, leading to the destabilization and disintegration of the old core CR, the BSO mechanism will govern the RS through a "chaotic exploratory period" fraught with uncertainty. During this period, BSO, through more intense and open interactions between the RS's internal residual structures and between the RS and the "Pure Nothingness" potentiality background, probabilistically explores various new DPs connection patterns and potential CR candidate configurations. Ultimately, also under the dominance of BSO, a new CR' that can more effectively manage the current (possibly changed) EEP equilibrium will self-organizingly emerge from these possibilities and gradually stabilize, completing the reconstruction of the RS's overall structure.

13.3.3 CSAM as a Possible Generative Mechanism for New CR "Seeds" During EEA Transition Periods

During the "chaotic exploratory period" of an EEA "transition node," when the structural constraints of the old CR are lifted and the system's interactive interface with "Pure Nothingness" potentiality becomes more open and fluid, the "Commonality Self-Activation Mechanism (CSAM)" (or some variant adapted to a background with pre-existing partial structures) may be "re-ignited."

At this time, CSAM's operation may manifest more as: utilizing the PVs released after the old CR's disintegration (which have regained partial "degrees of freedom"), residual DPs fragments or REs patterns (which may serve as new sources of "commonality" or "structural seeds"),

and the "relational propensities" of newly activated PVs from the "Pure Nothingness" background. Through a (possibly accelerated or parallel) process of "Superpositional Emergence" and "Entangled Stabilization," within the overall dynamic background of BSO, it probabilistically generates numerous new, small-scale, local DPs connections and potential CR "candidate patterns" or "structural germinations."

These "possibility germinations" and "structural candidates" produced by a (reactivated) CSAM provide the BSO mechanism with richer "raw materials" for "selection" (referring to dynamic stabilization screening, not teleological selection) and "organization" during the chaotic exploratory period. This may accelerate the emergence of a new CR' or increase the diversity and novelty of the new CR'. CSAM, at the transition nodes of the EEA, is like providing new "spark plugs" and "fuel additives" for BSO, this "reconstruction engine."

The eternal operation of EEP provides the fundamental "why" for EEA "progression," while BSO (and CSAM, synergistically acting at specific stages) explains "how" the maintenance of stable periods and the reconstruction of transition periods on the EEA are concretely and mechanistically realized. The synergistic action of these three (EEP, BSO, CSAM) collectively constitutes the core of *Relatedness Theory's* cosmic evolutionary dynamics.

13.4 Profound Correlation Between EEA and Other Core Concepts of Relatedness Theory

The "Existence-Evolution Axis (EEA)," as the culminating concept in *Relatedness Theory* describing the history of a series of fundamental transformations (i.e., "displacements") in the rule system embodied by a "Relatedness System's (RS)" core "Commonality Reference (CR)" (that is, the stable relational structural pattern embodying that RS's "existence basis" and fundamental operational rules), does not exist in isolation. On the contrary, the EEA is profoundly and mutually corroboratively correlated with all other core concepts of *Relatedness Theory*—from the most basic ontological posits (such as "Pure Being," "Primordial Vectors, PVs," "Global Bidirectional Self-Organization mechanism, BSO") to the most complex dynamic mechanisms (such as "Commonality Self-Activation Mechanism, CSAM," "Existence-Evolution Paradox, EEP"). Understanding these correlations helps us to grasp the internal unity and logical self-consistency of *Relatedness Theory's* cosmic tableau from a more holistic and coherent perspective.

13.4.1 EEA and the "Principle of Relative Causal Restructuring": Evolution as the Continuous Reshaping of Causal Referential Frameworks

Every "displacement" of the rule system embodied by a core CR on the EEA (i.e., an EEA "transition node") signifies a fundamental transformation in that RS's "existence basis" and core "operational rules" (defined and embodied by the new CR'). Since a CR (especially its top-level CRO and internal SROs, all of which are stable relational structural patterns embodying specific "commonality rules") directly stipulates the connection modes and activation probabilities of "Dependency Paths (DPs)" within its RS, the manifestation rules ("projection rules") of "Relative Entities (REs)," and their interaction laws, it fundamentally shapes the "causal structure" within that RS—i.e., which events tend to cause which consequences, and how information and influence are transmitted and transformed.

Therefore, every successful "displacement" of the rule system embodied by a core CR on the EEA is necessarily accompanied by a profound transformation in that RS's internal "operational rules" and "causal structure." Old causal chains (patterns identified under the

reference of the old CR) may break or become invalid; new, previously non-existent causal links may emerge; and the sequential order of event occurrence (if its definition depends on the old CR's reference) and patterns of mutual influence may become entirely different from expectations based on the old CR.

This is precisely a direct manifestation of the "Principle of Relative Causal Restructuring" in *Relatedness Theory*. This principle profoundly indicates that causality is not an absolute, eternally immutable objective law, but is highly dependent on the CR context in which it is situated (i.e., the RS's current "existence basis," defined by the rule system embodied by its core CR), and dynamically evolves with the "displacement" of this core CR's embodied rule system on the EEA. Every "transition" on the EEA is a re-weaving of the causal tapestry (i.e., causal patterns under specific CR reference), a redefinition (relative to the new CR' referential framework) of the meaning of "past" events and the possibility paths of the "future." The "Principle of Relative Causal Restructuring" is the direct logical consequence, at the dynamic and epistemological levels, of EEA evolution (i.e., the fundamental transformation of CR rule systems).

13.4.2 EEA and "Evolutionary Rate (v)": Potential Influence of Intrinsic Transformative Propensity on the Rhythm of Historical Trajectories

An RS's intrinsic "evolutionary rate (v)" (originating from the combined action of the four ontological roots: IPP, IoF, FIR, OSA), as the sum of its transformative propensity, its intensity and the relative weights of its four sources, will profoundly influence the intensification rate of that RS's "Existence-Evolution Paradox (EEP)," thereby potentially affecting the "topographical" features of its EEA:

1. Potential correlation between the intensity of v and the average length of EEA "plateau phases": An RS with a higher average v may have its core CR (the rule system it embodies) more easily challenged, and the "structural stress" accumulated within it may more quickly approach its "existence-bearing capacity (C_max)." This may (though not necessarily implying a simple, direct correspondence, as it is also jointly influenced by multiple complex factors such as the intrinsic characteristics of that CR's own "period of definitional power T_CR," the functional form of its "maintenance cost h(T)," and the specific value of C_max) lead to a relatively shorter average "length" (if measured by reference to some

potential "intrinsic time" related to BSO operational rhythm) of its "stable periods (plateau phases)" on its EEA. In other words, the effectiveness and stability of its core CR's embodied rule system are more easily exhausted or forced to end prematurely.

2. Potential correlation between the intensity of v and the frequency of EEA "transition node" occurrences: Correspondingly, an RS continuously in a state of high v may also experience a relatively higher frequency of "displacement" events of its core CR rule system (i.e., "transition nodes") on its EEA.

3. Influence of the constituent sources of v on the "possibility direction" of a new CR' after CR "displacement": As detailed in Chapter 11 (11.4.3), during the "chaotic exploratory period" of CR reconstruction, the four sources of v (the "traction" effect of IPP on the DPs network, the "logical pain points" of the old CR rules exposed by IoF, the "structural diversity" generated by FIR, and the responsive demand to new environmental conditions from OSA) will collectively, through the operation of the "Global Bidirectional Self-Organization (BSO) mechanism" and possibly a reactivated "Commonality Self-Activation Mechanism (CSAM)," influence the "possibility direction" of emergence and the probability distribution of eventual "selection" (dynamic stabilization) of a new CR' (a new, stable relational structural pattern embodying different commonality rules) in its abstract "CR possibility space." This influence is intrinsic and non-teleologically directed. For example, if an RS's v is primarily driven by strong OSA, then "displacements" on its EEA might statistically tend more towards the emergence of CR's whose rule systems enable it to interact more effectively (more self-consistently or at lower cost in the BSO sense) with the external environment.

Therefore, the magnitude and constitution of v are among the key intrinsic dynamic factors shaping the specific morphology and "rhythm" of a particular RS's EEA trajectory, but this shaping effect is realized within a complex, non-linear BSO and EEP dynamic framework.

13.4.3 Hierarchical Nature of EEA: EEAs of RSs at Different Scales and their Interaction and Reference via BSO

Just as "Commonality References (CRs)" possess a hierarchical nature (SRO defines RL, CRO defines RS, ARO serves as a broader referential framework, and an ARO itself may be a higher-order RS possessing its own core CR), the "Existence-Evolution Axis (EEA)" may

also exhibit a corresponding hierarchical nature. Each tier of CR (SRO, CRO, or a higher-order CRO defining an ARO) may undergo its own history of "rule system displacement" driven by the EEP of its encompassing tier, i.e., its own EEA.

1. EEA_RL at the SRO level: Within a relatively stable "plateau phase" of an RS defined by a core CRO, a certain (or certain) "Relatedness Level (RL)" within it, defined by an SRO, may undergo its own EEA_RL evolution, which is relatively smaller in scale and more localized in impact. That is, the rule system embodied by that SRO undergoes adjustment or reconstruction, leading to changes in that RL's operational rules and "Relative Entity (REs)" manifestation patterns, but such changes are not yet sufficient to subvert the "existence basis" defined by the entire RS's core CRO.

2. EEA_RS at the CRO level: This corresponds to a fundamental "displacement" of the rule system embodied by an RS's core CRO, a thorough transformation of the RS's "existence basis" and "operational paradigm." It will profoundly affect the EEA_RL of all its internal SROs and RLs, possibly leading to the disintegration of old SROs/RLs, profound reshaping of existing SROs/RLs, or the emergence of entirely new SROs/RLs.

3. EEA_ARO at the ARO level: If an RS is contained within a higher-order "Encompassing/Inclusive Commonality Reference (ARO)" (which is itself a more grandiose RS possessing its core CRO_ARO), then this ARO's own EEA_ARO (i.e., the "displacement" history of the rule system embodied by its core CRO_ARO) will provide a more macroscopic background constraint and evolutionary driving force for the EEA_RS of all RSs within it. For example, the EEA_Cosmos of a "Physical Cosmos ARO" (if its fundamental laws and structure are evolving) would fundamentally shape the EEA trajectories of all internal galaxy RSs, stellar RSs, etc.

These EEAs of different tiers do not evolve in isolation but engage in complex mutual influence and nesting via the "Global Bidirectional Self-Organization (BSO) mechanism":

"Top-down" constraint and triggering: A "transition node" on a higher-tier ARO's EEA (e.g., possible changes in fundamental cosmic constants, or a fundamental transformation of society's overall core values, all corresponding to "displacements" of its core CR_ARO rule system) may act as a powerful "source of perturbation" or "selection

pressure" (in a non-teleological sense of dynamic screening conditions), triggering a chain reaction of "transition nodes" on the EEAs of multiple lower-tier CROs (and their RSs) within it.

"Bottom-up" convergence and drive: Conversely, "displacement" events of rule systems occurring on the respective EEA_RL or EEA_RS of multiple lower-tier SROs or CROs, which may seem independent, if their influences converge and accumulate via the BSO mechanism, may also collectively challenge and ultimately contribute to the destabilization and "displacement" of the rule system embodied by the core CR of their encompassing higher-tier CRO or ARO.

This hierarchical nature of EEA and trans-tier interaction is an important manifestation of how complexity is generated and evolves in the cosmos of *Relatedness Theory*, profoundly revealing how the evolutionary histories of "existence" at different scales are interrelated and mutually shaping.

13.4.4 EEA and "Intrinsic Time": Philosophical Speculation on the Sequence of CR Rule System "Displacement" Events as a Potential Measure of Time

In *Relatedness Theory's* theoretical ambition to seek thorough background independence and to attempt to derive "intrinsic time" from the system's own dynamics, the EEA, as an ordered sequence of events recording fundamental "displacements" of the rule system embodied by a core CR, its relationship with "intrinsic time" warrants profound philosophical speculation:

1. Is the "progression" of EEA itself the passage of "intrinsic time"? Or, does the "event sequence" of EEA (the "displacement" of CR rule systems) constitute a possible "metronome" or "milestone" for defining "intrinsic time"?

Relatedness Theory tends to believe that EEA itself marks the passage of "structural time" or "qualitative time," i.e., the logical sequence and historical depth of the replacement of an RS's "existence paradigm" (defined by its core CR rule system). It is not directly equivalent to a possibly more universal "intrinsic time" capable of uniformly measuring all processes (if the latter can be consistently defined).

However, these fundamental, irreversible "events" of core CR rule system "displacement" on the EEA are undoubtedly the most salient markers by which the "arrow of time" is established in the cosmos of

Relatedness Theory. They are like profound "navigational beacons" or "milestones" engraved by RS evolution itself on the (possibly not yet fully understood) river of "intrinsic time," defining the "periodization" of evolutionary history.

2. Exploring the possible correlation between EEA's "event density" (frequency of CR rule system "displacement" per unit of "intrinsic time") and an RS's v or EEP intensity.

If we assume the existence of some more fundamental "intrinsic time" scale that can be used as a reference (the emergent mechanism of which is a subject for *Relatedness Theory's* future in-depth exploration), then the "density" or "frequency" of an RS experiencing core CR rule system "displacement" events on its EEA might statistically have some positive correlation with the magnitude of its intrinsic "evolutionary rate (v)" or the intensity of the "Existence-Evolution Paradox (EEP)" it faces.

An RS with a higher v or continuously under higher EEP tension might have its core CR's embodied rule system destabilize more easily, thus leading to more frequent "transition nodes" on its EEA, and a relatively shorter average "intrinsic time" length for its "plateau phases."

But this correlation is not a simple linear deterministic relationship; it is subject to complex modulation by BSO processes and the contingency inherent in CR reconstruction itself. The "rhythm" of EEA is a complex emergent result of an RS's intrinsic dynamics interacting with the complex relational network in which it is situated.

13.4.5 Overall "Trend" or "Directional Preference" of EEA (Cautious Discussion within the Framework of Non-Preset Goal-Oriented Change)

Although *Relatedness Theory* strictly adheres to the principle that the evolution of any "Relatedness System (RS)" and every "displacement" of the rule system embodied by its core "Commonality Reference (CR)" are fraught with contingency, and its changes do not point to any presupposed goal, direction of optimization, or ultimate state of perfection, is it possible that over extremely long timescales, when we observe the "Existence-Evolution Axis (EEA)" trajectories of a large number of RSs, or after a specific RS has undergone a sufficient number of EEA "transitions," certain (non-preset) macroscopic "trends" or "directional preferences" might manifest statistically, resulting from the combined action of the "dynamic screening" of the "Existence-Evolution

Paradox (EEP)" and the self-organizing properties of the "Global Bidirectional Self-Organization (BSO) mechanism"?

The origin of such possible "trends" or "directional preferences" must be strictly confined within the intrinsic mechanisms of *Relatedness Theory*, for example:

1. Tendency towards forming CR rule systems that can more effectively manage EEP: Under the continuous "pressure" of EEP and the fundamental constraint of an RS's finite "existence-bearing capacity (C_max)," those CRs that coincidentally emerge and happen to possess rule systems enabling them to maintain a longer "period of definitional power (T_CR)" with a lower generalized "maintenance cost (h(T))", or possess a higher C_max to accommodate a higher "evolutionary rate (v)", are statistically more likely to stably exist for a longer duration in their EEA "plateau phase" and may become the basis for subsequent, more complex structural evolution. This might manifest macroscopically as a statistical trend towards forming CR rule systems that are "more existentially sustainable" or "can more effectively manage their internal contradictions."

2. Tendency towards some form of structural complexification or enhancement of information integration capacity under specific conditions (non-teleological emergence): If the "Encompassing/Inclusive Commonality Reference (ARO)" environment in which an RS is situated (e.g., an environment increasingly rich in information, or a competitive environment requiring more complex interaction to acquire resources) exerts continuous "selection pressure" (via the "Open System Adaptation, OSA" mechanism, which still operates within the EEP framework as non-teleological dynamic screening) on its information processing capacity or structural complexity, then those new CR's, coincidentally emerging during EEA "transitions" whose rule systems enable them to more effectively process information, integrate internal and external relations, or exhibit more complex behavioral patterns, might be more likely to achieve stability and persistence. Over extremely long timescales and averaged over a large number of samples, this might manifest as certain EEA trajectory lineages exhibiting some (non-teleological, path-dependent) "growth" trend in "structural complexity" or "information integration capacity" (if these characteristics can be appropriately defined and measured).

It must be strictly emphasized that such possible "trends" are "post hoc summaries" of evolutionary history and manifestations of statistical regularities, not the guidance of any intrinsic "purpose." They are like macroscopic ordered patterns emerging from self-organization observed in complex systems, the unforeseen, emergent macroscopic patterns of long-term evolution under complex dynamics and probabilistic exploration of underlying simple rules (e.g., the "inherent necessary propensity" of "Primordial Vectors, PVs," the operational logic of the "Global Bidirectional Self-Organization (BSO) mechanism," the dynamics of the "Existence-Evolution Paradox, EEP"). They must absolutely not be interpreted as the cosmos possessing some intrinsic "will to progress," "tendency towards optimization," or any form of "teleological blueprint." The cosmic evolution of *Relatedness Theory* is open and creative; its magnificence lies in the infinite possibilities of its intrinsic mechanisms, not in any presupposed endpoint.

13.5 Philosophical Implications of EEA: As the Ultimate Embodiment of Relatedness Theory's "Processual View of Existence" and the "Topographical Map" of the Evolutionary Epic of All Relatedness Systems

The "Existence-Evolution Axis (EEA)," as the culminating concept of *Relatedness Theory's* dynamics and evolution theory, its proposal is not merely to describe the historical trajectory of a "Relatedness System (RS)." More profoundly, it reveals and embodies the unique core philosophical stance of *Relatedness Theory*—especially its thoroughgoing "processual view of existence."

The EEA profoundly reveals that the cosmos of *Relatedness Theory* is a cosmos of eternal "Becoming" and "Process"; there are no eternally immutable "Existence Bases" or "Ultimate Laws" (apart from *Relatedness Theory's* own posited most fundamental ontological principles—such as the infinite potentiality of "Pure Being" and the "inherent necessary propensity" of "Primordial Vectors (PVs)"—and the "Global Bidirectional Self-Organization (BSO) mechanism" as the universal logic of "Relational Reality's" operation, any specific, manifested CR rule is mutable). Every "transition node" on the EEA is a sublation of an old "existence basis" and the genesis of a new "existence basis."

The EEA is the "historical footprint" of any RS continuously undergoing self-sublation, self-creation, and self-transcendence, driven by its intrinsic contradictions (EEP), and the "topographical map" of its "possibility exploration" in "CR possibility space." It demonstrates that the "existence" of an RS is not a static "attribute," but a dynamic evolutionary process constantly unfolding in the dimension of time (which may be intrinsic and event-driven), fraught with intrinsic tension, contingency, and creativity.

Understanding the EEA helps us to examine and comprehend the origin, evolution, and future of all things in the cosmos (all RSs) from a dynamic, historical perspective filled with contingency and creativity. It encourages us to relinquish the obsession with eternally immutable "entities" and "essences," and instead to focus on the dynamic evolution of relational networks, the relativity of referential frameworks, and the intrinsic logic of transformative processes.

13.6 Chapter Summary: "Existence-Evolution Axis (EEA)"—The Eternal Evolutionary Epic Written by All Relatedness Systems in

This chapter has deeply and systematically elucidated the "Existence-Evolution Axis (EEA)," the culminating concept in *Relatedness Theory* used to describe the non-linear historical trajectory of fundamental "displacements" of the "existence basis" of a "Relatedness System's (RS)" core "Commonality Reference (CR)."

We first precisely defined the philosophical essence of EEA: it is an ordered sequence of fundamental, structural "displacement" events experienced by an RS's (or a specific tier's core CR) core CR throughout its entire course of existence, driven by intrinsic "Existence-Evolution Paradox (EEP)." The core characteristics of EEA manifest as profound non-linearity and event-driven nature, historicity and path dependence, contingency and creativity; and it can be conceptually understood as the evolutionary trajectory of a core CR in "CR possibility space."

We detailed the structural morphology of EEA, namely, its composition by alternating cycles of relatively enduring "stable periods (plateau phases)" (manifesting a specific CR's "period of definitional power T_CR") and periods of intense transformation, "transition nodes" (fundamental "displacement" of the core CR's "existence basis"). We particularly elucidated that during the "chaotic exploratory period" of a "transition node," the failure of old CR rules and the re-release of potentiality occurs; the "Commonality Self-Activation Mechanism (CSAM)" may be reactivated in CR reconstruction, providing "seeds" for new CR emergence; and under the dominance of the "Global Bidirectional Self-Organization (BSO) mechanism," a new CR' probabilistically emerges and stabilizes. Special emphasis was placed on how, in this process, the "traction" effect on DPs networks originating from "Infinite Potentiality Pressure (IPP)" and other sources of v (IoF, FIR, OSA) collectively act, via the BSO mechanism, to cause systemic reorganization of the RS's DPs network, ultimately manifesting as a "displacement" of the CR, as its "focus," in "possibility space." We also pointed out the non-strict periodicity of this cycle and the complex morphology that the overall EEA trajectory might exhibit.

This chapter further clarified the driving mechanism of EEA: the eternal operation of the "Existence-Evolution Paradox (EEP)" is the fundamental engine driving EEA "progression," while BSO (and CSAM, synergistically

acting at specific stages) is the core organizing principle and realization mechanism for the maintenance of stable periods and the reconstruction of transition periods on the EEA.

Furthermore, we deeply explored the profound correlation between EEA and other core concepts of *Relatedness Theory*, including its direct logical consequential relationship with the "Principle of Relative Causal Restructuring," the potential influence of the intensity and constitution of "evolutionary rate (v)" on the "rhythm" of EEA, the possible hierarchical nature of EEA and its philosophical speculation with "intrinsic time," and the macroscopic "trends" or "directional preferences" that EEA's long-term evolution might statistically exhibit within a strictly non-teleologically directed framework.

Finally, we elucidated the profound philosophical implications of EEA: it is the ultimate embodiment of *Relatedness Theory's* "processual view of existence," the "historical footprint" of all "Relatedness Systems (RSs)" continuously undergoing self-sublation, self-creation, and self-transcendence driven by their intrinsic contradictions, and the "topographical map" of their "possibility exploration" in "CR possibility space."

In summary, the "Existence-Evolution Axis (EEA)," as the core concept of the final chapter of the ontological part of *Relatedness Theory*, not only provides a unified, intrinsically consistent descriptive framework for the long-term evolution of RSs, but also profoundly reveals that the cosmos of *Relatedness Theory* is a dynamic process of eternal generation, continuously writing its own history in contradiction and innovation. The study of EEA will help us to more deeply understand the unique evolutionary history, key turning points, and future challenges and new possibilities that specific complex Relatedness Systems may face (e.g., the EEA of life systems emerging from non-living matter, the EEA of human consciousness evolving from early cognitive structures, or the EEA experienced by human social formations throughout their long history). It reminds us that any "existence" is merely a transient "station" on this eternally extending axis of EEA, and "evolution" is the eternal theme of the cosmos and all Relatedness Systems within it.

Volume II: Philosophical Elucidations of Relatedness Theory

Part One: Who Am I?

—The World is a Relatedness System, and I am its Central Reference.

Introduction: The Echo of an Age-Old Question and the Ontological Fog

"Who am I?"—these three short words, like a stone cast into the abyss of existence, have stirred endless philosophical reverberations in humanity for millennia. It is not merely a psychological question about individual identity, but an ultimate metaphysical inquiry touching upon the essence of existence, the origin of consciousness, the passage of time, and our relationship with the cosmos. From the ancient Greek "Know thyself," to Descartes' "Cogito, ergo sum," and then to modern neuroscience's exploration of self-awareness, generation after generation of thinkers has attempted to find a cornerstone upon which to settle this seemingly simple yet exceptionally complex question.

However, traditional answers often fall into certain presupposed predicaments. Entity-based theories seek an immutable "soul" or "spiritual core" as the carrier of "I"; reductionism attempts to decompose "I" into the physical constitution of the body or the neural activity of the brain; phenomenology focuses on the subjective experience of the stream of consciousness. These perspectives each offer their insights, but they also frequently bring new paradoxes, such as the chasm of mind-body dualism, the conflict between free will and determinism, and the problem of diachronic identity revealed by the famous "Ship of Theseus."

Relatedness Theory (RT) offers an entirely new path to examine this question. It does not start from a presupposed "self" entity but places "I" within its broader "primacy of relations" ontology and dynamic evolutionary framework. As summarized before—"The world is a Relatedness System, and I am its central reference"—this provides us with a highly illuminating entry point. This part aims to employ the complete logic of *Relatedness Theory*—including Dependency Paths (DPs), Commonality References (CRs) and their hierarchy (SRO, CRO), Relative Entities (REs), Relatedness Systems (RSs), Relatedness Levels (RLs), Commonality Self-Activation Mechanism (CSAM), Global Bidirectional Self-Organization (BSO) mechanism, Existence-Evolution Paradox (EEP) & Existence-Evolution Axis (EEA), as well as Pure Being/Pure Nothingness and other core concepts—to profoundly elucidate the *Relatedness Theory* answer to the question "Who am I?", and to detail the meaning of "I" as the central reference for its own experienced world, as well as how this dynamic, relational "self" is

generated, maintained, reconstructed, and ultimately returns to potentiality in the grand drama of cosmic evolution.

Part One: What "I" Am Not—Dispelling the Entity-Based Illusion of "Self" and Returning to Relational Reality

In the vision of *Relatedness Theory*, to understand "Who am I?", one must first deconstruct those deeply ingrained, entity-based illusions concerning the "self."

1.1 "I" Am Not an Isolated, Unchanging Intrinsic Entity

Traditional conceptions often regard "I" as an independent subject possessing fixed boundaries, a unique essence, and continuous identity across time. Whether it is the "soul" in a religious context, "spiritual substance" or "pure rational subject" (like Kant's transcendental apperception) in philosophical speculation, or the "core of the self" that early psychology sought to find, all imply such a presupposition: there exists a "thing" that can be distinguished from the external world and other experiential content, serving as the foundation of "my being me."

Relatedness Theory, however, fundamentally negates this entity-based assumption. According to its "primacy of relations" ontology, the basic constitution of the cosmos is a dynamic network of Dependency Paths (DPs), not isolated entities. Therefore, the so-called "I," like any other "object of existence," cannot be an independent existent separate from this relational network and possessing intrinsic attributes. Its existence and characteristics are necessarily products of the relational network in which it is embedded. Searching for a "true self" that transcends relations and exists independently is like looking for a patch of still water in a flowing vortex.

1.2 "I" Am Not Merely the Body or the Brain as Physical Entities

In today's world, where materialism and neuroscience are increasingly dominant, a common view is to equate "I" with my body, or more precisely, with my brain and its neural activity. The body and brain are undoubtedly the necessary material basis for "I" to manifest and operate; they themselves are extremely complex Relatedness Systems (RS_Body, RS_Brain), internally filled with innumerable hierarchical Dependency Paths (DPs) and Relative Entities (REs) (e.g., cells, neurons, neural circuits, etc.).

However, *Relatedness Theory* posits that "I" is not equal to the sum of these physical structures. The body and brain are key subsystems and Relatedness Levels (RLs) constituting "I" as this grander Relatedness System (RS_Self) that spans multiple ontological levels. They provide the material carriers and channels (DPs) for information input (perception), processing (neural computation), storage (memory traces), and output (behavior). But the holistic identity, subjective experience, self-awareness, values, social roles, and other higher-level attributes of "I" emerge from the overall patterns and dynamic interactions of these physical levels with higher-level (such as psychological, social, cultural) relational networks, rather than being merely a simple accumulation or linear result of physical composition. Just as the beauty of a symphony is not merely the aggregation of instruments (physical composition) but the emergence of harmonious relations (DPs) between notes (REs) under a specific score (CR).

1.3 "I" Am Not a Purely Passive Observer or Stream of Consciousness

Certain philosophical schools (such as some forms of empiricism or phenomenology) might primarily understand "I" as a "tabula rasa" passively receiving external sensory stimuli, or as a series of continuous conscious experiences that themselves lack a unified subject.
However, *Relatedness Theory* profoundly points out that cognition is not a simple replication or passive imprinting of the external world, but an active, intrinsic construction process of the cognitive subject (understood in *Relatedness Theory* as a unique "cognitive Relatedness System, RS_Cognition"). In accordance with the epistemological principles of *Relatedness Theory*, "I," as a cognitive subject, am by no means a passive container of information or a neutral observer. On the contrary, "I" am an active shaper of my own experiential world and bestower of meaning. The "real world" we experience, including our perception of ourselves, is the dynamic result of our internal cognitive "Commonality References (CRs_Cognitive)" (e.g., our perceptual patterns, conceptual frameworks, memory structures, and even the core self-reference) continuously and complexly selecting, filtering, organizing, interpreting, and imparting specific meaning (relative to these cognitive CRs) to input "Dependency Paths (DPs_Input)" (i.e., various information flows from the environment and the body). Conscious experience itself is the phenomenal-level presentation of this construction process, driven by the "Global Bidirectional Self-Organization (BSO) mechanism" and

referenced by cognitive CRs. Therefore, "I" am not merely receiving information but, through my intrinsic referential frameworks and organizational principles, am actively—though this construction process itself may not always be consciously manipulated—yet profoundly shaping and defining the "world" "I" experience and the "self" as the experiencing subject.

Part Two: "Who Am I?"—A Multi-layered Relatedness System (RS_Self) Based on and Organizationally Centered Around a Central Commonality Reference (CRO_Self)

Having dispelled the entity-based illusions, *Relatedness Theory* offers a positive, constructive answer to "Who am I?": "I" am an extremely complex, dynamically evolving Relatedness System (RS_Self) capable of generating unique subjective experience. To understand "Who am I?" is to deeply understand the constitution, existence basis, operational mechanism, and evolutionary logic of this RS_Self.

2.1 "I" Am a Multi-layered, Interconnected System

This RS_Self, "I," encompasses multiple interconnected and interacting Relatedness Levels (RLs), spanning from the most fundamental physico-chemical level, to the bio-physiological level, then to the neuro-cognitive level, the psycho-emotional level, and even the socio-cultural level.

Physico-Chemical RL (RL_Physical/Chemical): The interactions of atoms and molecules constituting my body follow the laws of quantum mechanics and chemistry (these laws themselves, in *Relatedness Theory*, are also operational modes under specific CRs). This is the material basis of "I."

Cellular/Biological RL (RL_Cellular/Biological): Organelles, cell metabolism, gene expression, signal transduction, etc., follow the rules of cell biology. Cells, as REs, constitute tissues via DPs.

Physiological System RL (RL_Physiological): The functions and coordination of organs (such as heart, lungs, brain) and systems (such as circulatory, nervous, endocrine, immune systems) follow physiological rules. These organs and systems are themselves complex REs or sub-RSs.

Neuro-cognitive RL (RL_Neurocognitive): The connection topology of brain neuron networks (DPs), synchronous firing patterns of neural ensembles (REs), information processing algorithms, learning and memory mechanisms, etc., follow the laws of neuroscience and cognitive psychology.

Psychological/Phenomenal RL (RL_Psychological/Phenomenal): Thoughts, emotions, intentions, beliefs, values, memory contents, etc., as REs of information patterns, and the relational DPs between them. Subjective experience (qualia) also manifests at this level.

Social/Cultural RL (RL_Social/Cultural): The roles "I" play as a member of society, the social relational networks (DPs_Social) "I" am in, the social norms and cultural scripts "I" follow, the linguistic symbol systems "I" use, etc.

Each level may be defined by specific sub-references (SROs) that stipulate its internal commonality rules, RE types, and dynamic characteristics. For example, a specific physiological homeostatic mechanism is an SRO, a particular cognitive heuristic is an SRO, and a social role norm is also an SRO.

2.2 The Existence and Unity of "I" Depend on a Central Commonality Reference (CRO_Self) - The Core Self-Reference

For this complex system, containing innumerable elements and spanning multiple levels, to be integrated into an "I" possessing a sense of unity, continuity, and subjectivity, *Relatedness Theory* posits that there must exist one (or a group of closely related) Central Commonality Reference Object(s) (CRO_Self), sometimes also termed the Self-Reference Core (SRC).

The essence of CRO_Self: It is not a "self-center" located somewhere in the brain or an immutable "soul entity." It is itself a highest-order, stable commonality standard and frame of reference, defining "subjectivity" and "first-person perspective," which self-organizes and emerges from the extremely complex DPs network dynamics within "I," this RS_Self.

Possible constitution and manifestation of CRO_Self (at the philosophical level):

Integration of body schema and proprioception: Continuous sensory input from the body and proprioception (perception of one's own limb position and state) are integrated via DPs, forming a dynamic, implicit "bodily self" reference, which is the basis for "my" sense of physical boundary and existence.

Narrative integration of memory: Autobiographical memories (REs about "my" experiences) are not stored haphazardly but are organized by a higher-level cognitive CR into a "life story" or "self-narrative" possessing a certain coherence and meaning. This narrative framework itself is part of CRO_Self.

Core cognitive framework and world model: The core belief system, values, worldview, and self-concept (the set of REs regarding "what kind of person I am," "what I can do," "what I should do," and their associated DPs) that an individual uses to understand the world, predict the future, make decisions, and evaluate value, constitute key content of CRO_Self.

Internalization and integration of social identity: Social roles, group affiliations, and others' views and expectations of "me," acquired and internalized by the individual in social interaction, are also integrated into CRO_Self, becoming important references for defining "who I am" (in social relations).

Self-referential structure of consciousness: The "sense of self" or "sense of subjecthood" ("this is my experience") in conscious experience may originate from some profound recursive or self-referential structure within the cognitive system; this structure itself constitutes a core characteristic of CRO_Self.

Core functions of CRO_Self:

Integration: Integrates and converges vast, heterogeneous DPs information flows from different levels (physiological, sensory, memory, emotional, cognitive, social) into a relatively unified holistic experience.

Attribution of Subjective Meaning: Marks integrated information and experiences as "mine," endowing them with subjective meaning and value relative to "me" as the center.

Maintenance of Identity and Continuity: In the flux of time and experience, CRO_Self strives to maintain a relatively stable and continuous "self" pattern, although its specific content and structure may slowly evolve. This is the basis for our feeling of being the "same person."

Reference for Decision and Action: "My" decisions and actions are often made based on the core values, goals, and self-cognition defined by CRO_Self.

"I" as the Central Reference for its Own Experienced World: Constructing Subjective Reality

"The world is a Relatedness System, and I am its central reference"—this is profoundly corroborated and elucidated within the epistemological framework of *Relatedness Theory*.

Construction of the subjective world: For "I," this cognitive subject, the "world" it experiences (including the external physical environment,

social environment, and internal bodily sensations, thoughts, and emotions) is not that hypothetical "objective reality itself" existing independently of cognition. It is a subjective reality actively constructed after "I," this RS_Self, through its core Central Referential Organizer (CRO_Self) and other auxiliary cognitive CRs (SROs_Cognitive), selects, filters, organizes, interprets, and imparts meaning to DPs information flows from the environment and itself.

The CRO_Self as the "origin point" and "coordinate system" of subjective experience: In this construction process, "my" CRO_Self plays the role of the absolute central reference. All information and events incorporated into the scope of "my" conscious experience are evaluated, localized, and endowed with meaning relative to this "I."

External objects are perceived as "in front of me/behind me/to my left/to my right" (spatial reference).

Events are experienced as "happening to me," "beneficial/harmful to me" (value reference).

Others' behaviors are understood as "directed at me/unrelated to me" (social reference).

Thoughts and emotions are experienced as "my thoughts," "my emotions" (attributional reference).

This core CRO_Self is the "first-person origin point" and "meaning coordinate system" of the subjective experiential world.

The world is "my" world, but "I" am also part of the world: Therefore, for each cognitive subject "I," the "world" it perceives, understands, and interacts with is a phenomenological Relatedness System organized around its own core CRO_Self and endowed with subject-relevant meaning. Different "I"s (possessing different CRO_Selfs, originating from different physiological bases, experiential histories, cultural upbringings) will necessarily construct different subjective worlds, even when facing the same external physical input. However, it must also be recognized that "I," this RS_Self, is itself a node in the larger relational network of the cosmos, constrained and influenced by broader physical, biological, and social CRs (AROs).

Part Three: The Dynamic Evolution and Existential Journey of "I"—The EEA_Self Trajectory Driven by EEP

"I" am not a static structure, but a dynamic process within the evolutionary tableau of a "Relatedness System (RS)," driven by its intrinsic "Existence-Evolution Paradox (EEP)," continuously evolving, reconstructing, and possibly even disintegrating along its unique "Existence-Evolution Axis (EEA_Self)."

3.1 "I" Am an Eternal "Becoming," Not a Fixed "Being"

The "Dependency Path (DPs)" network constituting "I," this RS_Self—whether it be neural connections at the physiological level, memory associations at the psychological level, or relational ties at the social level—is constantly being established, adjusted, strengthened, or weakened under the continuous action of the "Global Bidirectional Self-Organization (BSO) mechanism."

Similarly, those "Relative Entities (REs)" carrying "my" cognitive content and informational states—such as "my" beliefs, skills, emotional patterns, self-concepts, etc.—are also continuously being generated, changing, and ceasing to exist.

More importantly, the "Core Self-Reference (CRO_Self)" itself, as the "existence basis" and organizational core of "I," is not immutable. It slowly evolves driven by its own EEP with an individual's learning, accumulation of experience, profound reflection, and the natural progression of the life cycle, or it undergoes fundamental "displacement" (i.e., structural reconstruction in "possibility space") when facing significant internal or external challenges.

Therefore, the existence of "I," from the perspective of *Relatedness Theory*, is forever an unfinished process of "becoming" in relational and hierarchical interaction, rather than a state of "being" that can be definitively defined once and for all.

3.2 The Core Driving Role of the Existence-Evolution Paradox (EEP) in the Evolution of "Self (RS_Self)"

"I," this unique RS_Self, like all other finite "Relatedness Systems (RSs)," is profoundly driven by the "Existence-Evolution Paradox (EEP)." EEP is the fundamental source of intrinsic tension, developmental impetus, and periodic crises in an individual's life course.

Manifestation of the intrinsic "evolutionary rate (v)" of RS_Self:

Need for learning and adaptation (originating from OSA): For an individual to maintain their existence and development in constantly changing physical, social, and cultural environments (which can be seen as the AROs they are situated in), they must continuously learn new knowledge, master new skills, and adjust behavioral patterns to adapt to external demands and opportunities. This openness to new information, responsiveness to external pressures, and intrinsic propensity to seek more effective interaction with the environment constitute an important component of RS_Self's v.

Cognitive incompleteness and the exploration for meaning/consistency (originating from IoF): "My" core CRO_Self (including its cognitive framework, world model, value system) is forever incomplete. It will always encounter new phenomena that its existing rules cannot effectively explain, internal cognitive dissonances that cannot be perfectly resolved (e.g., conflicts between beliefs and experiences, contradictions between different values), or a lack of a sense of meaning. This "logical and structural tension," endogenously generated by the "Incompleteness of Foundation" of CRO_Self, drives "me" to explore the unknown, seek deeper understanding, and pursue more self-consistent meaning and a more coherent self-cognition; this is also an important source of v.

Continuous fluidity of internal psychological and physiological processes (originating from FIR): "My" physiological states (such as metabolism, hormonal fluctuations), neural activities (such as dynamic adjustments of neuronal connections, "noise" in memory encoding and retrieval processes), and psychological experiences (such as emotional ups and downs, a wandering mind, the emergence of subconscious content) are themselves full of continuous, microscopic-level "fluidity of internal relations." The continuous internal "organizational effort" and "information calibration" undertaken by RS_Self to maintain its overall psychological and physiological homeostasis also contribute to its v.

"Possibility permeation" from "Pure Nothingness" (originating from IPP): In the process of growth and exploration, an individual continuously encounters "possibility domains" not previously experienced or considered (relative to their existing CRO_Self, this is "Pure Nothingness"). The "permeation" of this new information, new concepts, or new experiences constitutes a continuous "perturbation" to the boundaries and stability of the existing CRO_Self, stimulating its propensity for adjustment and integration.

Manifestation of RS_Self's core CRO_Self's "period of definitional power (T_CRO_Self)" and "maintenance cost (h(T))":

Maintenance of self-identity (T_CRO_Self): The reason "I" can feel like the "same person" amidst the flux of time and experience, possessing a relatively stable and coherent sense of self-identity, memory narrative, and core values, is precisely because its core CRO_Self can maintain the effectiveness of its rules and the relative stability of its structure within a certain "period of definitional power (T_CRO_Self)." This T_CRO_Self represents the stable existence time of the current "self-paradigm."

Cost of maintenance (h(T)): However, maintaining this psychological and physiological integration and stability is not without "cost." It requires continuous cognitive effort (e.g., using various psychological defense mechanisms to suppress conflicting information, engaging in self-rationalization, reinforcing core beliefs to counter uncertainty) and physiological energy consumption. When an individual faces enormous internal and external pressures, heightened internal conflicts, or attempts to maintain an outdated CRO_Self increasingly detached from reality, this "cost" of maintenance (h(T)) will increase sharply.

Specific manifestations of EEP in individual life:

Conflict between growth and adherence to the old: On the one hand, for development and adaptation, an individual's v drives them to learn new things, challenge old concepts, and try new roles; on the other hand, to maintain the stability of self-identity and psychological peace, their need for T_CRO_Self inclines them to cling to existing beliefs and behavioral patterns. This conflict is at the core of internal struggles in many life stages (such as adolescence, midlife).

Learning new knowledge and challenging old cognitive frameworks: Accepting new knowledge or experiences incompatible with the original cognitive framework (part of the old CRO_Self) triggers cognitive dissonance (a manifestation of EEP contradiction), forcing the individual into a difficult "negotiation" and adjustment between integrating the new and maintaining the stability of the original framework. This may lead to a "displacement" of the original cognitive CR.

The dilemma between pursuing a stable life and desiring to break through the self: At different stages of life, an individual may need

to choose and balance between pursuing a stable, predictable life (corresponding to a higher T_CRO_Self and lower h(T)) and desiring to realize potential, explore the unknown, and pursue more meaningful life experiences (corresponding to a higher v, possibly requiring a break from the stability of the existing CRO_Self).

The EEP roots of psychological crises and turning points: Many psychological crises (such as identity crisis, midlife crisis, existential crisis), in the view of *Relatedness Theory*, may precisely be the result of EEP contradictions within an individual's RS_Self accumulating to the critical point that its core CRO_Self's "existence-bearing capacity (C_max)" can bear, leading to the destabilization of the old CRO_Self. The system is then forced into a "transition node" fraught with uncertainty but also gestating opportunities for reconstruction.

3.3 The Existence-Evolution Axis of "I" (EEA_Self)—Structural Reconstruction of Life's Trajectory

An individual's life, from the perspective of *Relatedness Theory*, is not a linear, smooth process of energy decay or experience accumulation. Rather, it is more like a unique, non-linear "Existence-Evolution Axis (EEA_Self)" recording a series of fundamental "displacements" of its core "Commonality Reference (CRO_Self)" (i.e., its "existence basis" and "self-paradigm"). This EEA_Self is constituted by alternating relatively stable "plateau phases" (corresponding to life stages dominated by a specific CRO_Self) and "transition nodes" (corresponding to fundamental reconstructions or "life turning points" of CRO_Self).

Examples of "transition nodes" on EEA_Self:

From infantile chaos to the germination of childhood subjective awareness and the formation of a preliminary CRO_Self: This is the first crucial "transition" on an individual's EEA_Self. Through interaction with the environment (especially relational DPs with primary caregivers), accumulation of sensory experience, and development of the nervous system (BSO operation), a Core Self-Reference (CRO_Self) capable of preliminarily distinguishing itself from the external world and attributing experiences to "I" begins to emerge and stabilize via CSAM-like mechanisms (at the cognitive level).

Adolescent identity crisis and the first major reconstruction of CRO_Self: Drastic physiological changes, leaps in cognitive abilities, transformation of social roles, and a strong need for independence and

group identity collectively pose a huge challenge to the childhood CRO_Self (EEP contradiction intensifies). The old CRO_Self, primarily centered on family references, may destabilize. The individual experiences a "chaotic period" full of confusion, exploration, and conflict, eventually (ideally) reconstructing via BSO and (cognitive-level) CSAM, giving rise to a new, more mature CRO_Self capable of integrating more internal and external factors, thus opening the next "plateau phase" of EEA_Self.

Key life choices in adulthood, profound learning/epiphanies, or establishment/transformation of beliefs: For example, choosing a career path, establishing intimate relationships, becoming a parent, experiencing profound intellectual or spiritual "awakenings," converting to or changing a belief system, etc.—these may all represent major "displacements" of core cognitive CRs or value CRs (which are important components or SROs of CRO_Self) on an individual's EEA_Self, thereby profoundly altering the individual's understanding of the world, themselves, and the meaning of life, as well as their behavioral patterns.

Adjustments or reconstruction of CRO_Self triggered by major life events (such as trauma, unemployment, illness, loss of a loved one, or great success and honor): These events often strongly impact an individual's existing CRO_Self (especially its core beliefs, self-evaluation, and expectations of the world), potentially leading to the destabilization or even partial disintegration of the old CRO_Self. The individual needs to undergo arduous psychological adjustment (BSO operation), integrate new experiences, repair damaged DPs networks, and may reconstruct their CRO_Self to adapt to the new reality. This process can be painful but may also become an opportunity for the individual to achieve profound growth and acquire a more resilient CRO_Self.

Midlife crisis, wisdom integration in old age, and reflection on "ultimate concerns": As life progresses, the "period of definitional power (T_CRO_Self)" of life goals defined by the early CRO_Self (e.g., career achievement, family rearing) may gradually be exhausted, or its "maintenance cost (h(T))" may become too high relative to the individual's current "evolutionary rate (v)" (e.g., exploration for new meaning, adaptation to aging). This may trigger a "midlife crisis"-like intensification of EEP contradictions, forcing the individual to re-examine and "displace" their CRO_Self, seeking new life meanings and value references. In old age, an individual may enter an EEA stage of final integration of life experiences, seeking inner peace and life fulfillment,

and reflecting more deeply on the relationship between "existence" and "Pure Nothingness." This might be the last, and most transcendent, "displacement" or "preparation for dissolution" of CRO_Self.

The process and meaning of EEA_Self reconstruction: These "displacements" or reconstruction processes of core CRs in an individual's life are often not smooth sailing but are filled with internal struggles (manifestations of EEP contradiction), external challenges, and uncertainty in directional choices (the "chaotic exploratory period" after an old CR destabilizes). The individual needs, through active (or passive) learning, reflection, experimentation, and establishing new "Dependency Paths (DPs)" (e.g., developing new skills, building new interpersonal relationships, forming new cognitive patterns), and under the guidance of the "Global Bidirectional Self-Organization (BSO) mechanism," to gradually integrate new experiences and information, ultimately possibly forming a new, relatively stable CRO_Self capable of better managing the current EEP balance (entering the next "plateau phase" of EEA_Self). This process is fraught with contingency (e.g., encountering specific people, exposure to particular ideas, occurrence of accidental events) and the individual's unique path dependence (past experiences and the form of CRO_Self influence future possibilities).

Understanding "my" life trajectory as a series of non-linear transitions on its unique EEA_Self, its core significance lies in:

Accepting the inevitability of change and the possibility of growth: Recognizing that the "self" is not immutable, stability is only temporary, and the "displacement" of core references and reconstruction of "existence basis" are ongoing occurrences in the life course, enabling individual growth and development.

Understanding the tortuousness and internal logic of growth and transformation: Understanding that an individual's growth and transformation (especially those profound "paradigm shifts") are often accompanied by the chaos, anxiety, and discomfort brought by the destabilization of old referential frameworks; this is a necessary process of CR reconstruction driven by EEP, not an indication that the individual "has a problem."

Respecting the uniqueness and contingency of individual life experience: Each individual's EEA_Self trajectory and the triggering timing, specific content of "transition nodes" upon it, as well as the form of the newly emergent CRO_Self, are unique results, fraught with

contingency, of their distinct genetic basis (initial PV "relational propensities"), life encounters (continuous action of IPP and OSA), and the interaction of their internal BSO and EEP dynamics.

3.4 The Birth and Death of "I" as an Individual: The Termination of CRO_Self's Period of Definitional Power and the Return of Potentiality

Relatedness Theory also offers a unique, non-substantialist philosophical perspective on the end of an individual's life (death), based on the dynamics of its core CR.

Death as the final exhaustion and disintegration of core CRO_Self's period of definitional power:

The "living" individual "I," this "Relatedness System (RS_Self)," can be understood as a holistic process wherein innumerable "Dependency Path (DPs)" networks and "Relative Entity (REs)" patterns are dynamically maintained and coordinately operated under the unified organization and reference of an extremely complex, unique "Core Self-Reference (CRO_Self)" that spans multiple levels—physiological, neural, cognitive, psychological, social, etc. This CRO_Self is the "existence basis" for maintaining the continuity of individual life phenomena, the integration of physiological homeostasis, and (for individuals capable of generating consciousness) the unity of first-person subjective experience.

Death, in the view of *Relatedness Theory*, is precisely the event where this core CRO_Self—which maintains RS_Self as a unified "unit of existence" with a specific identity—completely ends its "period of definitional power (T_CRO_Self)" due to the ultimate irreconcilability of its intrinsic "Existence-Evolution Paradox (EEP)" (e.g., certain sources of v, such as physiological decay or disease encroachment, become unmanageable by the existing CRO_Self, or the h(T) required to maintain CRO_Self stability far exceeds its RS_Self's C_max).

This means that the unique core organizational principle, commonality rules, and referential framework (CRO_Self) that defined "my being me" collapse. Its "definitional power" can no longer effectively organize the DPs network within RS_Self, nor can it stably "project" those key REs patterns constituting "me" (such as coherent memory, unified consciousness, coordinated physiological functions).

The disintegration process of RS_Self: When the core CRO_Self collapses, the various "Relatedness Levels (RLs)" (physiological, neural, cognitive, etc.) constituting "I," this RS_Self, lose their unified

organizational and coordinating framework. The key "Dependency Paths (DPs)" between them (e.g., DPs for the integrative regulation of physiological systems by the nervous system, information flow DPs between different cognitive modules) undergo large-scale severance or deactivation. The entire RS_Self, as a "unit of existence" with a specific identity and holism, thereupon disintegrates.

Not complete disappearance, but the return of the potentiality constituting "I" to the "Pure Being" background:

Importantly, according to the fundamental ontological principles of *Relatedness Theory* ("Pure Being" is the sole ontological cornerstone, encompassing all possibilities and never increasing or decreasing), this disintegration of RS_Self is not an utter annihilation or disappearance into absolute nothingness.

Those most fundamental potentiality units constituting "I," this specific RS_Self (corresponding at the philosophical level to "Primordial Vectors, PVs" and their "inherent necessary propensities," and at the phenomenal level possibly to the body's material elements, energy forms, and (if they can be carried in some way) information patterns, etc.) do not vanish. They merely lose the structural pattern that organized them into that specific entity called "I," possessing a unique CRO_Self.

These potentiality units revert to the infinite potentiality background of "Pure Being." Relative to that specific, terminated CRO_Self of "I," they enter a state of "Pure Nothingness" (potentiality unactivated and unorganized by a specific CR).

However, this potentiality, having returned to the "Pure Being/Pure Nothingness" background, can be entirely "responsively activated" and organized anew by other operating or newly emerging "Commonality References (CRs)" (whether the CROs of other living beings, CRs of other levels in nature, or even the CRs of future potential artificial intelligence RSs), participating in the construction and evolution of new "Relatedness Systems (RSs)." For example, the atoms and molecules constituting "my" body will decompose and re-enter Earth's ecological cycle (a vast ARO), becoming constituent parts of other living beings (new RSs). The information, thoughts, emotions, and influences "I" created and transmitted throughout life (if they can be recorded, remembered, learned, or imitated in some form) may also, via various "Dependency Paths (DPs)" (such as language, writing, art, social interaction, even genetics (if considering offspring)), be integrated into

other cognitive systems (other RS_Selfs) or the collective cultural knowledge system of humanity (a grand ARO), becoming part of their evolution.

The *Relatedness Theory* perspective on the cycle of birth and death:

Relatedness Theory thus offers a non-substantialist, relational, processual perspective on the cyclical transformation of individual birth and death.

"Birth" can be understood as the "manifestation" process wherein specific "Primordial Vector (PVs)" potentiality, under unique internal and external conditions and the action of the "Global Bidirectional Self-Organization (BSO) mechanism," successfully gives rise to a unique "Core Self-Reference (CRO_Self)" via the "Commonality Self-Activation Mechanism (CSAM)," and organizes a "Relatedness System (RS_Self)" with a specific identity and operational mode around this CRO_Self.

"Death" is then the event where this RS_Self's core CRO_Self loses its "definitional power" due to the ultimate irreconcilability of its "Existence-Evolution Paradox (EEP)," leading to the disintegration of the specific "relational pattern" it organized. Its constituent (generalized) potentiality reverts to the broader "Pure Being/Pure Nothingness" background, awaiting participation in the generation and evolution of new, possible "Relational Reality."

In this tableau, the potentiality of "Pure Being" is eternal, while any specific, manifested structure (including "I," this RS_Self) is merely a transient dancer in the "dance of relations," constantly undergoing birth and death along the EEA.

Part Four: The Ultimate Answer to "Who Am I?"—A Dynamically Evolving, Relatively Constructed, Hierarchical Subjective Process within the Cosmic Web of Relations

Synthesizing all the preceding analyses, *Relatedness Theory* offers a profound, dynamic, relational, and, to some extent, "processual" answer to the age-old question, "Who am I?":

"I," in the ultimate vision of *Relatedness Theory*, am not an isolated, immutable entity or a mere stream of consciousness. Rather, "I" am an extremely complex, multi-layered Relatedness System (RS_Self), with a unique, self-organized emergent Central Commonality Reference (CRO_Self) as its existence basis and organizational core. This core CRO_Self defines "my" identity, the referential framework for subjective experience, and the fundamental rules for interacting with the world.

The constitution of "I" is relational: "I" am rooted in a dynamically changing network of Dependency Paths (DPs) permeating body, mind, and society, and through these DPs, "I" continuously interact with the physical environment, other living beings, socio-cultural contexts, and the deeper potentiality background of Pure Being.

The experience of "I" is constructive: The "world" and "self" that I perceive are subjective realities actively constructed by my core CRO_Self and other cognitive CRs through the active selection, organization, and interpretation of input information flows. I am the central reference of my own experiential world, but this referential system itself is also a product of the relational network.

The evolution of "I" is dynamic: The existence of "I" is an eternal process of "Becoming," driven and shaped by the intrinsic Existence-Evolution Paradox (EEP)—the tension between the transformative propensity v and the need/cost of stability (T_CR, h(T))—as well as fundamental physical/informational constraints (such as the existence-bearing capacity C_max). My life course is a non-linear trajectory on a personal Existence-Evolution Axis (EEA_Self), constantly undergoing minor adjustments and fundamental reconstructions of the core CRO_Self.

The essence of "I" is relative: I do not have a fixed, immutable "true self" or intrinsic essence. My identity, attributes, and meaning are entirely defined and manifested relatively within relational networks and CR contexts, and they evolve with changes in these relations and contexts.

The birth and death of "I" are transformations of patterns: The "birth" of

"I" is the emergence and stabilization of a specific "self" relational pattern from Pure Being potentiality; the "death" of "I" is the final disintegration of this core organizational pattern, its constituent potentiality returning to the infinite background of Pure Being, awaiting participation in new possibilities.

The profound meanings and implications of this answer:

Dissolving the obsession with an entity-based self: It breaks the search for an isolated, unchanging "ego," re-understanding the self as a flowing, relational process.

Emphasizing the fundamentality of relation and connection: The existence and meaning of "I" cannot be detached from my profound connections (physical, emotional, social, cultural) with the world.

Affirming the active constructive role of the subject: "I" am an active creator of my own reality and meaning, not a passive recipient.

Revealing the intrinsic mechanisms of self-evolution and growth: It provides a profound dynamic framework (EEP, EEA) for understanding personal development, learning, psychological transformation, crisis, and transcendence.

Acknowledging the ontological basis of subjectivity: It roots subjective experience in this core CRO_Self referential system, explaining why the world, for "me," is uniquely "my world."

Embracing change, uncertainty, and possibility: Since "I" am dynamically evolving, there always exists the possibility, under constraints, to reshape the self, change core references, and explore and construct different realities.

Chapter Conclusion: "I" as a Referential Focus Existing Within the Relational Enactment

Relatedness Theory's answer to "Who am I?" is undoubtedly profound and challenging. It invites us to relinquish the search for an isolated, eternal, entity-based self, and instead to embrace a more fluid, related, hierarchical, dynamically evolving self-concept, fraught with internal contradictions and possibilities. Understanding "I" as existing as the Central Commonality Reference (CRO_Self) of a complex Relatedness System (RS_Self), and as the central referential focus of its own experienced world, may help us to more deeply understand our own experiences, our relationship with the world, our eternal process of "becoming," and the infinite creativity and evolutionary potential we, as unique "relational patterns," can exhibit in this grand cosmic dance of relations. This is not merely a philosophical answer; it may also contain

profound wisdom guiding how we live, how we coexist harmoniously with others and the world, and how we seek meaning and transcendence within the fundamental paradoxes of existence.

Part Two: Reinterpreting the Three Great Philosophical Questions

First Question: "Who Am I?"

This question essentially asks: "Am I that unique 'Core Self-Reference (CRO_Self)' which is the organizational core and identity cornerstone of my own 'Relatedness System (RS_Self)', and how does this CRO_Self operate and construct my subjective experience?"

Misconception in traditional understanding: This question is typically understood as a search for an unchanging, intrinsic "self" essence or core identity. It is akin to asking whether the Ship of Theseus, after all its planks have been replaced, is still the "same ship," attempting to find that immutable essence defining its "ship-ness."

Relatedness Theory's interpretation:

Negation of an immutable entity: *Relatedness Theory*, starting from its "primacy of relations" ontology, fundamentally denies the existence of such an isolated "self" entity possessing intrinsic attributes. The so-called "I," like any other identifiable "object of existence" (usually understood in *Relatedness Theory* as a specific "Relatedness System, RS" or "Relative Entity, RE"), its existence and characteristics are necessarily products of the relational network, composed of "Dependency Paths (DPs)," in which it is embedded. Searching for a "true self" that transcends relations and exists independently is meaningless within the framework of *Relatedness Theory*.

The core lies in the "Core Self-Reference (CRO_Self)" as an organizing principle and its operation: "Who am I?" In *Relatedness Theory*, its most direct answer points to that unique "Core Self-Reference (CRO_Self)." This CRO_Self is not a physical entity or a spiritual core, but a highest-order, relatively stable set of "commonality rules" and a referential framework, defining "my" subjectivity and first-person perspective, which self-organizes and emerges from the extremely complex DPs network dynamics within "I," this unique, multi-layered "Relatedness System (RS_Self)," through the "Global Bidirectional Self-Organization (BSO) mechanism" (this BSO originating from the interactive logic of the "bidirectional potential infinite extensibility" and "inherent necessary propensity" of the most fundamental "Primordial Vectors, PVs" constituting RS_Self). Therefore, this question is essentially inquiring:

1. What are the specific "commonality rule" contents of this CRO_Self that serves as the cornerstone of "my" identity? (E.g., what core belief systems, values, memory narratives, body schemas, and cognitive models for processing internal and external information does it encompass?)

2. How does this CRO_Self, within its RS_Self, via the BSO mechanism, integrate heterogeneous information flows transmitted by innumerable DPs and REs manifested in these RLs (such as perception, memory, belief, emotion, social roles, etc.) from different "Relatedness Levels (RLs)" (such as the physiological RL_Physiological, neuro-cognitive RL_Neurocognitive, psychological-experiential RL_Psychological, socio-cultural RL_Social/Cultural), and endow them with subjective meaning and value relative to "me" as this central reference?

3. How does this CRO_Self, as a frame of reference, construct "my" first-person perspective and a unified (albeit dynamically changing) subjective experiential world?

Identity as the dynamic manifestation of CRO_Self's operational mode: "My" sense of identity, diachronic continuity, and the unity of subjective experience do not originate from some internal, immutable entity, but emerge from the relatively stable operation of this core CRO_Self, the continuous effectiveness of the "commonality rules" it solidifies, and its process of dynamically constructing and integrating experience as a frame of reference through BSO. When I ask "Who am I?", I am actually attempting to identify and understand that core, dynamic, relational referential framework and its operational mode by which I organize experience, construct meaning, make decisions, and define the boundary between "me" and "not-me."

The insight from the Ship of Theseus: Regarding the "identity" problem of the Ship of Theseus, *Relatedness Theory* posits that it depends on which CR we choose as the standard for judgment. If we take "the material collection of all specific planks (REs) constituting the ship" as the CR, then after all planks have been replaced, it is no longer the "same ship." But if we take a higher-order core CRO (this CRO defining the identity of "The Ship of Theseus" as an RS)—"a specific functional, morphological, and historical continuity pattern as an Athenian historical and cultural symbol"—then even if all material REs are replaced, as long as the macroscopic relational pattern defined by this CRO and its key DPs in the socio-cultural network (e.g., its continuous designation by

Athenians as "The Ship of Theseus" and its carrying of corresponding commemorative functions) are maintained, then it remains the "same Ship of Theseus" under the reference of that CRO. Similarly, "my" diachronic identity also depends on whether this core reference, CRO_Self, can dynamically maintain the relative continuity of its core organizational patterns, referential functions, and "self-narrative" via the BSO mechanism amidst the continuous flux (FIR, as a source of v) of the various levels constituting "me" (replacement of physiological cells, updating of memory content, changes in social relations, etc.).

The dynamic nature of the answer and the EEA_Self trajectory: Since CRO_Self itself is dynamically evolving, it is driven by the "Existence-Evolution Paradox (EEP)" within its RS_Self (i.e., the tension between its intrinsic "evolutionary rate v" and its own "period of definitional power T_CRO_Self" and generalized "maintenance cost h(T)," under the constraint of "existence-bearing capacity C_max"), and undergoes a process of "displacement" from stability to destabilization and then reconstruction along its individual "Existence-Evolution Axis (EEA_Self)." Therefore, the answer to "Who am I?" is also not fixed. It is an open process that needs to be re-examined, experienced, and defined at different life stages (the "plateau phases" and "transition nodes" of EEA_Self).

Second Question: "Where Do I Come From?"

This question essentially asks: "How was the 'Dependency Path (DPs)' network constituting 'me,' this 'Relatedness System (RS_Self),' historically and probabilistically activated, woven, and organized from the 'Primordial Vector (PVs)' potentiality of 'Pure Being,' under the reference and screening of layers of CRs, through the synergistic action of 'Global Bidirectional Self-Organization (BSO)' (whose root lies in the interactive logic of PVs) and 'Commonality Self-Activation (CSAM)' (as a specific manifestation of BSO in the structural origin phase)?"

Misconception in traditional understanding: This question is typically understood as tracing an individual's physical origin (such as the union of parents, the development of a fertilized egg) or a singular source of consciousness (such as a specific brain region or some divine endowment). It attempts to find a linear, originating "first cause."

Relatedness Theory's interpretation:

Transcending a singular linear starting point, embracing a hierarchical generative process: *Relatedness Theory* posits that "my" origin is not a singular physical event or some pre-existing entity, but a continuous, multi-layered, relational-networked process of generation and construction, whose roots can be traced all the way back to the most primordial ontological posits of *Relatedness Theory*.

Ultimate origin in "Pure Being" potentiality and PVs' "inherent necessary propensity": The ultimate source of "possibility" for "I," this RS_Self (like all RSs), is the sole, infinite potentiality of "Pure Being." The possibility for all elements constituting "me" (from the most basic material composition to the most complex ideas) to exist is contained therein. This potentiality is carried by "Primordial Vectors (PVs)," hypothetical distinguishable units, each PV possessing its unique "inherent necessary propensity" (i.e., its "way or potentiality of existence and interaction"), which is the earliest source of "rules" for relations to germinate.

The core lies in the BSO-governed activation and weaving of DPs and the emergence of CRs: "Where do I come from?" in *Relatedness Theory* essentially inquires: How were those innumerable "Dependency Paths (DPs)" constituting me, this specific Relatedness System (RS_Self)—including physical (e.g., genes, intercellular DPs), biological (e.g., physiological system regulatory DPs), neural (e.g., neuronal connection and information transmission DPs), psychological (e.g., conceptual association, memory retrieval DPs), and social (e.g., interpersonal

relationship, cultural influence DPs) DPs—activated from the PV potentiality of "Pure Being" and gradually woven into a complex DPs network with a specific topological structure and dynamic characteristics, under the continuous action of the "Global Bidirectional Self-Organization (BSO) mechanism" (this being the universal organizing principle originating from the "logical genesis" of PVs' "bidirectional potential infinite extensibility" and "inherent necessary propensity" and their interaction, permeating all levels and links)? This occurs through the probabilistic "ignition" by the "Commonality Self-Activation Mechanism (CSAM)" (as a specific manifestation of BSO in the structural origin phase, based on PVs' "inherent necessary propensities" and gradually clarified "potential commonality rules," via the synergistic dual paths of "Superpositional Emergence" and "Entangled Stabilization"). And how did that unique "Core Self-Reference (CRO_Self)" (as well as the "Specific Commonality References, SROs" of its internal "Relatedness Levels, RLs"), serving as the "existence basis" and organizational core of this RS_Self, self-organize and emerge from this BSO-governed DPs network evolution?

Tracing a hierarchical, historical process of relation generation and CR emergence: This question traces not a singular "prime mover" or a linear "causal chain starting point," but a complex historical process of relation generation and CR hierarchical emergence:

1. Against the "Pure Being" background, how do PVs, through primordial BSO interactions, gradually clarify their "potential commonality labels"?

2. How does CSAM, within the BSO framework, based on these "potential commonalities" and "Pure Being" fluctuations, probabilistically activate initial DPs and give rise to initial, possibly very simple and unstable, CR prototypes?

3. How do these primary CRs, through their "Defining Fields" under BSO action, guide the "responsive weaving" of more DPs, forming more complex DPs networks and REs patterns?

4. How do higher-order, more stable CRs (such as various SROs defining "my" physiological basis, cognitive abilities, social attributes, and ultimately the CRO_Self governing all of these) self-organize and emerge from this hierarchically constructed DPs network through the continuous operation of BSO (possibly including CSAM-like, higher-level "structural solidification" processes)?

5. What historical contingencies (e.g., unique genetic combinations, specific early experiences, key socio-cultural interactions) and path dependencies (early formed CR and DPs network structures influencing subsequent evolutionary possibilities) have influenced this long and complex generative process?

The insight from the Ship of Theseus: Asking "Where did this Ship of Theseus come from?" is not merely asking "Where was the first plank sourced?" but rather, "How was the specific 'Dependency Path (DPs)' network constituting this ship (i.e., the connection methods between planks, the overall structural design, the functional relations enabling it to sail, etc.) historically and probabilistically 'woven' and 'constructed' from more fundamental 'Primordial Vector (PVs)' potentiality (e.g., the physical properties of wood, the potential skills of craftsmen) through a series of 'Commonality Self-Activation' and 'Global Bidirectional Self-Organization' processes (e.g., craftsmen's selection, processing, assembly behaviors), according to the 'definition' and 'projection' of 'ship' as a higher-order 'Commonality Reference (CR)' (e.g., a CRO_Ship encompassing its design philosophy, functional requirements, historical mission)?"

The networked, hierarchical, historical, and probabilistic nature of the answer: Therefore, the answer to "Where do I come from?", in the view of *Relatedness Theory*, is not a simple point or line, but a vast, multi-layered, historical, contingency-laden, and path-dependent network map of "Dependency Path (DPs)" generation and "Commonality Reference (CR)" emergence, governed by BSO. It depicts how "I," this unique "Relatedness System (RS_Self)," "condensed" and "manifested" step by step into my current form from the infinite potentiality sea of "Pure Being" through a series of complex relational constructions and referential establishments.

Third Question: "Where Am I Going?"

This question essentially asks: "Driven by the eternal 'Existence-Evolution Paradox (EEP),' what kind of fundamental 'displacement' of 'existence basis' will 'I,' this 'Relatedness System (RS_Self),' its core 'Commonality Reference (CRO_Self),' undergo along its unique 'Existence-Evolution Axis (EEA_Self),' thereby manifesting which new (contingency-laden, non-teleologically directed changes) 'existence paradigms' and evolutionary possibilities?"

Misconception in traditional understanding: This question is typically understood as inquiring about life's presupposed goals, ultimate destiny, or some transcendent fate of the individual after death. It often carries a strong teleological color or a presupposition of an eternal, ultimate state.

Relatedness Theory's interpretation:

Strict negation of any form of presupposed goal or endpoint state: *Relatedness Theory*, from its fundamental principle that "changes do not point to any presupposed goal," strictly negates that the evolution of any RS (including "I," this RS_Self) is towards some pre-set "perfect self," "ideal life," or "final destiny." There is no "script of fate" written at the end of EEA_Self.

The core lies in the eternal drive of EEP and the non-linear trajectory of EEA_Self: "Where am I going?" in *Relatedness Theory* essentially inquires:

Given the intrinsic "Existence-Evolution Paradox (EEP)" driving the continuous existence and evolution of "I," this RS_Self—that is, the eternal tension between its overall "evolutionary rate (v)" (originating from IPP, IoF, FIR, OSA) and its core "Commonality Reference's (CRO_Self)" "period of definitional power (T_CRO_Self)" and generalized "maintenance cost (h(T))," under the constraint of its finite "existence-bearing capacity (C_max)"—how will my core CRO_Self (i.e., my current "existence basis" and "self-paradigm") dynamically evolve within its T_CRO_Self?

Will it ultimately, due to the accumulation and intensification of EEP contradictions (e.g., certain aspects of v continuously increasing, or the cost of h(T) becoming unbearable, causing RS_Self's overall "activity intensity" Σ to approach its C_max), inevitably destabilize and disintegrate?

If it destabilizes, what kind of "chaotic exploratory period," governed by the "Global Bidirectional Self-Organization (BSO) mechanism," will

RS_Self undergo? During this period, with old CRO_Self rules failing and interaction with "Pure Nothingness" intensifying, will and how might the "Commonality Self-Activation Mechanism (CSAM)" reactivate, "igniting" new DPs connections and potential CR candidate patterns from "Pure Being" potentiality (including the "remnants" of the old CRO_Self and new possibilities)?

Ultimately, under the combined action of BSO's self-organizing screening and (possible, IPP-originated) "traction" effects on DPs networks, among other factors, what kind of new Core Self-Reference (CR'_Self) (which will possess its own T'_CR, h'(T'_CR), and C'_max characteristics, and be able to more effectively manage the current EEP balance) might emerge with a certain probability and gradually stabilize? The establishment of this new CR'_Self will mark a fundamental "displacement" of "my" "existence basis," thereby bringing "me" into a new "existential stage" or "plateau phase" on my individual "Existence-Evolution Axis (EEA_Self)."

Inquiring into the "possibility space" of evolution, "trigger conditions for structural reconstruction," and "dynamic modes": *Relatedness Theory's* answer to "Where am I going?" inquires not about a definite "destination," but rather:

The "possibility space" of future evolution: Under the current EEP state and BSO dynamics, towards which (possibly infinitely many) new regions of "CR possibility space" might my CRO_Self "displace"?

"Trigger conditions" and "critical phenomena" for structural reconstruction: What combination of internal and external factors, or what degree of EEP contradiction intensification, will cause the stability of the current CRO_Self to reach a critical point and undergo a "transition"? What dynamic characteristics will this "transition" process exhibit (e.g., a slow "phase transition" or a drastic "mutation")?

Dynamic modes the system might exhibit during "paradigm shift": During the "chaotic exploratory period" between the disintegration of the old CRO_Self and the not-yet-fully-stabilized new CR'_Self, what kinds of cognitive, emotional, and behavioral uncertainty, creativity, and adaptive adjustments will RS_Self experience?

The insight from the Ship of Theseus: Asking "Where is this Ship of Theseus going?" is not asking about its voyage destination (if any). Rather, from *Relatedness Theory's* perspective, it inquires: "How will the 'Dependency Path (DPs)' network (e.g., DPs of societal continuous recognition of its historical significance, or DPs of its physical structure maintaining its navigational function) and its 'Relative Entities (REs)' (e.g., specific planks, crew skills) that its 'Central Commonality

Reference (CRO_Ship)' (e.g., defining its rules and identity as a 'specific historical monument' or 'specific functional sailing vessel') depends upon, evolve under the drive of its intrinsic 'Existence-Evolution Paradox (EEP)' (e.g., the conflict between the physical aging of materials, v, and maintaining its historical symbolic meaning, T_CR)? Will it, due to continuous replacement of planks (RE replacement, DPs reorganization), eventually cause its core CRO_Ship to undergo 'displacement,' thereby losing its identity as 'The Ship of Theseus' (i.e., CRO_Ship collapses or is replaced by a new CR'_Ship)? If its core CRO_Ship collapses, will it merely become a pile of wood without specific identity (its constituent potentiality returning to 'Pure Nothingness'), or might it, under new internal and external conditions, through BSO and CSAM operations, be re-endowed with meaning and organized into a new 'Relatedness System' with a different core CR'_Ship (e.g., a purely 'Art Installation RS' or an 'Ancient Shipbuilding Technology Teaching Model RS')?"

The open, probabilistic, and incompletely predictable nature of the answer: Since the "displacement" process of RS_Self's core CR is fraught with contingency (originating from CSAM's probability, BSO's chaotic exploration, and the unpredictability of v's four ontological roots), and its dynamics may also be highly complex (even chaotic), the answer to "Where am I going?" for "I," this RS_Self, is necessarily open, uncertain, and probabilistic. We cannot precisely predict an individual's future specific life trajectory or the exact form into which their core CRO_Self will evolve. We can only, based on an understanding of *Relatedness Theory's* dynamic principles (especially EEP and BSO), recognize the intrinsic contradictions driving individual evolution, the constraint conditions it is under, and the transformative modes and multiple possibilities it might experience when facing "transition nodes."

Summary: From Entity-Based Inquiry to the Exploration of Relational Dynamics

Within the logical framework of *Relatedness Theory*, the mode of questioning and the possible directions for answers to these three ancient philosophical questions—"Who am I? Where do I come from? Where am I going?"—undergo a profound transformation:

"Who am I?" is no longer an inquiry into a static, immutable entity-essence, but transforms into an exploration of what that core, dynamic "Commonality Reference (CRO_Self)" is, which defines the existence, identity, and subjective experience of "I," this unique "Relatedness System (RS_Self)"; how it self-organizes, emerges, and operates; and how

it evolves along EEA_Self driven by EEP.
"Where do I come from?" is no longer a tracing of a linear physical origin or a singular source of consciousness, but transforms into an inquiry into that vast and subtle "history of relational generation"—how the complex, multi-layered "Dependency Path (DPs)" network constituting "I," this RS_Self, was historically and probabilistically generated and woven from the "Primordial Vector (PVs)" potentiality of "Pure Being" through the universal action of the "Global Bidirectional Self-Organization (BSO) mechanism" and the specific catalysis of the "Commonality Self-Activation Mechanism (CSAM)," via layers of CR reference, screening, and organization.
"Where am I going?" is no longer a pursuit of a presupposed life goal, ultimate destiny, or some transcendent fate, but transforms into an inquiry into what kind of non-linear structural reconstructions and what new (contingency-laden, creatively generated, non-teleologically directed changes) "existence paradigms" and evolutionary possibilities "I," this RS_Self, its core "existence basis (CRO_Self)," might experience along its unique "Existence-Evolution Axis (EEA_Self)," driven by the eternal intrinsic "Existence-Evolution Paradox (EEP)" and constrained by its fundamental "existence-bearing capacity (C_max)."
These three questions ultimately all point towards a profound understanding of relation, referential systems, potentiality, intrinsic contradiction, self-organizing dynamics, and evolutionary constraints—these core elements of *Relatedness Theory*. By shifting the focus of inquiry from a static "what it is" to a dynamic "how it is" and "why it evolves thus (non-teleologically)," *Relatedness Theory* provides an entirely new framework for answering these ultimate questions, one that is possibly closer to the essence of reality. It requires us to abandon the expectation of simple, unique, absolute answers, and instead to embrace the complexity, dynamism, relativity, and profound relatedness of existence, and within this understanding, to rediscover and reconstruct our unique position and meaning as dynamically evolving "Relatedness Systems (RS_Selfs)" within the cosmic web of relations.

Part Three: Relatedness Theory's Reconstruction of the Ship of Theseus: The Evolution and Identity Assessment of a Relatedness System Under Commonality Reference Constraints

Relatedness Theory re-examines and understands the classic identity paradox of the "Ship of Theseus" within a broader framework based on its unique relational dynamics and hierarchical ontology. In the view of *Relatedness Theory*, "identity" is not an intrinsic, absolutely immutable attribute of things. Rather, it is a comprehensive, context-dependent assessment of the relative stability of patterns, the continuous effectiveness of rules, and the continuity of core organizational principles exhibited by a "Relatedness System (RS)"—that is, a holistic dynamic unit composed of an innumerable, interdependent network of "Dependency Paths (DPs)"—as its internal relational patterns (which manifest as identifiable "Relative Entities, REs" under specific conditions) evolve along its unique "Existence-Evolution Axis (EEA)" under the definition and constraints of specific "Commonality References (CRs)."

I. The "Ship" as the Emergence and Demarcation of a Specific Relatedness System (RS_Ship)

The formation and core constitution of RS_Ship: The original Ship of Theseus, from the perspective of *Relatedness Theory*, can be precisely understood and demarcated as a specific "Relatedness System," which we term RS_Ship. The core constituent elements of this RS_Ship include:

Internal "Relative Entities (REs)": A large number of "plank" REs, "nail" REs, and other material constituent units stably "projected" and manifested from the underlying DPs network at more microscopic "Relatedness Levels (RLs)." According to *Relatedness Theory's* principle of "no intrinsic attributes," these REs themselves do not possess a fixed, immutable essence; their characteristics are entirely determined by the DPs network they are situated in and the CRs that define them.

Internal "Dependency Paths (DPs)": These define how these microscopic REs (such as planks, nails) interconnect and interact via physical forces, spatial arrangement, functional coordination, etc., and collectively constitute the macroscopic structure of the ship's hull—the structural Dependency Path network (DPs_Structure). Simultaneously, they also include the functional Dependency Paths (DPs_Function) that define RS_Ship's capacity to float, carry personnel and cargo, and be endowed with specific historical and cultural significance.

Core "Commonality References (CRs)": RS_Ship, as an identifiable and discussable "unit of existence" with a specific identity, its existence, characteristics, and operation are necessarily defined and constrained by

a series of CRs of different levels and natures:
"Specific Commonality References (SROs)" defining material composition and basic construction: For example, SROs that define the range of physico-chemical attributes such as wood texture and nail hardness (they embody the rules of more fundamental physical AROs); and engineering SROs that define how components are combined according to principles of fluid dynamics and structural mechanics to form an effective ship hull. These SROs each define specific "Relatedness Levels (RLs)" within RS_Ship.
"Central Commonality Reference (CRO_Ship)" defining the overall identity, function, and meaning of RS_Ship: This is key to endowing RS_Ship with its identity as the unique, diachronically identical "Ship of Theseus." This CRO_Ship itself may be a complex, multifaceted CR, integrating at least the "commonality rules" and referential standards of the following aspects:

1. Form/Structure Reference (CR_Form/Structure): Defines the ship's specific physical form, dimensional proportions, and core structural organizational principles.

2. Function Reference (CR_Function): Defines the core functional requirements and operational modes of the ship as a "navigable vessel" or (subsequently) a "historical monument."

3. Historical/Continuity Reference (CR_Historical/Continuity): This is a more abstract CR that tracks and defines RS_Ship's historical continuity as a specific "unit of existence" in the flow of time and events (i.e., its EEA trajectory), its causal relatedness to its origin event (e.g., Theseus's first voyage), and its Dependency Paths with subsequent important historical events.

4. Social/Cultural/Linguistic Symbol Reference (CR_Social/Linguistic_Symbol): This is an extremely potent cultural reference co-constructed and endowed by Athenian society, this more grandiose "Relatedness System (RS_Society)" (or ARO), through its social consensus, historical memory, legal conceptions (such as ownership), and especially through linguistic naming (the symbol "Ship of Theseus" itself). This high-level, constructive CR often plays a crucial, even dominant, role in the identity determination and diachronic identity assessment of RS_Ship. It profoundly connects the physical hull of RS_Ship with the collective cognition, emotions, and cultural practices of the Athenians (which are also complex DPs networks).

The boundary of RS_Ship: The boundary of RS_Ship is not an absolute physical limit but is relative and dynamic. It is primarily demarcated by the effective sphere of influence of its core CRO_Ship's "definitional power" (especially CR_Form/Structure and CR_Function), and by the relative strength and nature differences of Dependency Paths between the internal DPs network constituting the ship's hull and the external environment (such as with water, air, port, and even the cognitive/informational DPs with observers and commemorators).

The existential essence of RS_Ship: The existence of RS_Ship, in the view of *Relatedness Theory*, is essentially the process wherein its internal complex relational network, composed of innumerable DPs (especially DPs_Structure and DPs_Function), under the joint definition, constraint, and "projection" of the aforementioned multiple hierarchical CRs (from underlying physico-chemical SROs to the highest-order socio-cultural CRO_Ship), dynamically maintains its activated state through the continuous operation of the "Global Bidirectional Self-Organization (BSO) mechanism," and stably manifests the macroscopic "Relative Entity (RE)" pattern identifiable as the "Ship of Theseus" with a specific identity and meaning.

II. The Replacement Process: "Conflict-Driven Reconstruction (CDR)" or BSO Adjustment within RS_Ship Driven by the "Existence-Evolution Paradox (EEP)"

The "Existence-Evolution Paradox (EEP)" faced by RS_Ship: RS_Ship, as a finite "Relatedness System" existing within a specific CR framework, necessarily faces its intrinsic "Existence-Evolution Paradox (EEP)." Specifically:

On the one hand, its core CRO_Ship (especially CR_Historical/Continuity and CR_Social/Linguistic_Symbol) demands that RS_Ship maintain the relative stability (T_CRO_Ship) of its identity, structure, and function as this unique historical-cultural symbol, the "Ship of Theseus."

On the other hand, its constituent microscopic "Relative Entities (REs)" (such as planks) and the "Dependency Paths (DPs)" connecting them (such as nail connections, molecular bonds in the wood) will naturally decay and break due to their own physico-chemical processes (e.g., oxidation, rot, fatigue—all of which can be seen as manifestations of their lower-level EEP, or as "Fluidity of Internal Relations, FIR" and "Incompleteness of Foundation, IoF" at the RS_Ship level, such as the finite lifespan of materials themselves). This constitutes a source of continuous "evolutionary rate (v)" within RS_Ship, tending towards the disintegration of its existing structure.

Plank replacement as BSO adjustment (or CDR in specific contexts) under EEP pressure: The process of continuously replacing rotten planks is precisely RS_Ship, under the constraints of its core CRO_Ship's "definitional power" and "existence-bearing capacity (C_max)," responding to EEP pressure through its internal "Global Bidirectional Self-Organization (BSO) mechanism." It is an adaptive adjustment or structural maintenance process aimed at preserving the stability and continuity of the macroscopic pattern (the ship's form, function, and historical-cultural identity) within its T_CRO_Ship.

If we understand "Conflict-Driven Reconstruction (CDR)" as an internal adjustment, repair, or replacement of constituent REs and DPs by an RS, undertaken to cope with local conflicts or maintain overall function while the core CRO remains relatively stable (i.e., does not undergo fundamental "displacement"), then the plank replacement here can be considered a specific form of CDR.

This adjustment is a dynamic balance struck between the "benefit" (of maintaining macroscopic identity and function) and the "cost" (of

sacrificing the material identity of microscopic REs and incurring replacement expenses). Its ultimate purpose is to extend the effective "period of definitional power (T_CRO_Ship)" of the core CRO_Ship as much as possible, avoiding the destabilization of the core CRO_Ship and the disintegration of RS_Ship's identity as the "Ship of Theseus" due to excessive intensification of EEP contradictions.

The crucial role of DPs in the replacement process: The process of replacing planks, at the level of "Relational Reality," necessarily involves complex dynamic changes in the DPs network:

Breaking/deactivation of old DPs: When an old plank is removed, the structural DPs (DPs_Structure) connecting that plank RE to other plank REs are severed, and its contribution DPs to the ship's overall function (DPs_Function) also temporarily cease.

Establishment/activation of new DPs: When a new plank is installed, new DPs_Structure conforming to CR_Form/Structure requirements need to be established between it and surrounding planks via the BSO mechanism (e.g., craftsmen's skilled operations, following specific engineering SROs), ensuring it can effectively participate in DPs_Function to restore or maintain the ship's structural integrity and functionality.

The key is to maintain the continuity of higher-order, more macroscopic DPs defining RS_Ship's identity: The core of the entire replacement process lies not in maintaining the material identity of each specific plank RE, but in maintaining, through the operation of the BSO mechanism, the continuity and stability of those higher-order, more integrative DPs networks that define RS_Ship's unique identity as the "Ship of Theseus." These key DPs may include:

1. DPs of macroscopic form and structural organizational principles (defined by CR_Form/Structure).

2. DPs for the realization of core functions (defined by CR_Function, e.g., the physical structure and spatial location DPs relied upon for it to serve as a monument for public veneration).

3. DPs of historical narrative and causal relatedness (tracked by CR_Historical/Continuity, e.g., DPs linking this ship to Theseus's heroic deeds, DPs linking it to historical events in Athens).

4. DPs of socio-cultural identity and linguistic symbolic designation (anchored by CR_Social/Linguistic_Symbol, e.g., the cognitive and social practice DPs of the Athenian community continuously designating this

physical object as the "Ship of Theseus," and related legal ownership DPs, etc.). As long as these higher-order DPs networks defining the core identity of RS_Ship can be continuously and dynamically maintained and reconstructed under the reference of its core CRO_Ship, then even if its internal material constituent REs (planks) are completely replaced, RS_Ship's identity as the "Ship of Theseus" may be preserved within its specific CR context.

III. "Identity" Judgment: An Assessment of RS_Ship's Trajectory on its "Existence-Evolution Axis (EEA_Ship)" Based on the Selected Core CR

We now examine the "identity" problem of the two ships. *Relatedness Theory* posits that this is not a yes/no question with a single absolute answer. Instead, it is a process of comparing and assessing the historical trajectory, structural patterns, functional performance, and relational network characteristics of these two (or one continuously evolving) "Relatedness Systems (RS_Ship)" on their respective (or common) "Existence-Evolution Axes (EEA_Ship)," under the premise of selecting one or a set of specific core "Commonality References (CRs)" as the evaluation standard. The judgment of "identity"—that is, to what extent we consider them "the same"—depends entirely on the nature and level of the CR we select.

The new-plank ship (RS_New_Ship - representing the system formed by the original ship through continuous component replacement and evolution):

EEA_New_Ship trajectory: Its "Existence-Evolution Axis (EEA_New_Ship)" can be considered the main branch of the original RS_Ship's EEA, continuously evolving and extending through constant internal RE replacement and DPs reorganization (BSO adjustment or CDR) during the "plateau phase" when its core CRO_Ship (especially those higher-order CRs defining its form, function, history, and cultural symbolic meaning) remains relatively stable (i.e., T_CRO_Ship has not yet ended).

Assessment under different CR references:

Reference to CR_Form/Function (Form/Function Reference): Since each replacement strives to restore the ship's original form and core function (e.g., as a historical monument for public veneration), under the reference of this CR, RS_New_Ship maintains a high degree of continuity and similarity in macroscopic structural patterns and functional performance with the early state of the original RS_Ship.

Reference to CR_Historical/Continuity (Historical/Continuity Reference): RS_New_Ship occupies the continuous trajectory of the original RS_Ship in time and space (or a more generalized existential location); its causal relatedness (indirect, established through commemorative acts and historical narratives) to Theseus-related historical events is maintained.

Reference to CR_Social/Linguistic_Symbol (Social/Cultural/Linguistic

Symbol Reference): This is crucial. As long as the Athenian community (as a higher-order RS_Society or ARO) and its collective cognitive CRs continuously designate this ship, constructed of new planks, as the "Ship of Theseus," and anchor and reinforce its unique identity and meaning as the "Ship of Theseus" through linguistic symbols, commemorative rituals, historical education, and other socio-cultural DPs, then under the reference of this dominant socio-cultural CR, RS_New_Ship maximally preserves its identity as the "true Ship of Theseus."

Reference to CR_Material_Composition (Material Composition Reference): However, if one solely references a lower-level CR_Material_Composition that only focuses on the identity of the specific material REs (planks) constituting the ship, then the EEA trajectory of RS_New_Ship has clearly undergone a complete renewal and rupture at its material composition level.

Assessment conclusion: Under the reference of those higher-order CRs that typically dominate the identity determination of a "Relatedness System (RS)" with historical-cultural significance (such as form, function, historical continuity, and especially socio-cultural naming and convention), RS_New_Ship is assessed as having extremely high "identity" with the original RS_Ship. It is considered the same RS_Ship evolving naturally along its EEA_Ship within the stable "period of definitional power (T_CRO_Ship)" of its core CRO_Ship (especially CR_Social/Linguistic_Symbol), through continuous internal BSO adjustments (or CDR) to cope with its "Existence-Evolution Paradox (EEP)" (the conflict between the decay of planks, v, and maintaining identity, T). This maintenance of identity profoundly embodies the principle of "continuity of relational patterns taking precedence over identity of material constitution" under specific CR reference, as well as the social constructivity of identity.

The old-plank ship (RS_Old_Wood_Ship - representing the new system reassembled from all the replaced old planks):

EEA_Old_Wood_Ship trajectory: Its "Existence-Evolution Axis (EEA_Old_Wood_Ship)" has an entirely new starting point—the moment in specific time and place when these old planks were re-collected and assembled into the form of a ship. Its EEA trajectory is broken and discontinuous with that of the original RS_Ship (unless we introduce a more macroscopic ARO focusing solely on "the collection of these specific old planks," but this deviates from the original context of the "Ship of Theseus").

Assessment under different CR references:

Reference to CR_Material_Composition (Material Composition Reference): Under the reference of this CR, RS_Old_Wood_Ship has the highest similarity in constituent material REs (old planks) with some early state of the original RS_Ship.
Rupture when referencing other key CRs: But if referenced against those CRs more decisive for the identity of the "Ship of Theseus":

1. CR_Form/Structure (Form/Structure Reference): It is reassembled; its assembly process itself (governed by new BSO processes) constitutes new historical and structural relations. It might attempt to imitate the original ship in form, but the specific formation history and organizational principles of its internal DPs network are already different and may not fully replicate the specific structural patterns of the original RS_Ship in its evolutionary process.

2. CR_Historical/Continuity (Historical/Continuity Reference): It lacks a continuous "Dependency Path (DP)" connection with the key historical events, specific spatiotemporal locations, and resulting causal chains experienced by the original RS_Ship on its EEA trajectory.

3. CR_Function (Function Reference) and CR_Social/Linguistic_Symbol (Social/Cultural/Linguistic Symbol Reference): It is generally not endowed by the Athenian community with the core historical-cultural functions carried by the original "Ship of Theseus" (e.g., being revered and commemorated as a national relic), nor is it automatically designated by social consensus and linguistic symbols as the "true Ship of Theseus." Its main Dependency Path (DPs) with the original RS_Ship is one of material origin (i.e., its plank REs originate from the original ship), not one of existential continuity or socially constructed identity.

Assessment conclusion: Under the reference of most higher-order CRs that dominate the identity of the "Ship of Theseus" (such as historical continuity, functional specificity, and especially socio-cultural naming and convention), RS_Old_Wood_Ship is assessed as a newly constructed "Relatedness System (RS)" different from the original RS_Ship. Its "identity" with the original "Ship of Theseus" is very low, despite the special historical origin of its material composition.

IV. BSO and Holism: The Socio-Physical Mutual Construction of Identity

The entire paradox of the "Ship of Theseus" and its *Relatedness Theory* interpretation profoundly embody the core role of the "Global Bidirectional Self-Organization (BSO) mechanism" in shaping and maintaining the identity and sameness of a complex "Relatedness System (RS)" (such as RS_Ship), especially when this RS is simultaneously embedded in a physical environment and a broader socio-cultural environment (which can be considered an ARO).

Macroscopic socio-cultural factors (e.g., the collective cognitive CRs of the Athenian community, their shared historical memory and cultural valuation of the "Ship of Theseus," and their continuous naming practices and commemorative acts), as components of a higher-order RS_Society or ARO, "top-down" modulate and constrain the reconstruction process of RS_Ship at the microscopic physical level (i.e., the replacement of planks or CDR) via various informational DPs and behavioral DPs (such as deciding to repair the ship, providing repair resources, continuously designating the evolving ship in the harbor as the "Ship of Theseus"). This socio-cultural level of BSO operation ensures that RS_Ship's physical evolution largely conforms to the "identity" standards defined by its core CRO_Ship (especially CR_Social/Linguistic_Symbol).

Simultaneously, the existential state of that physically evolving ship (RS_Ship), the integrity of its appearance, and the historical narrative it carries also, via physical Dependency Paths (such as visual perception) and informational Dependency Paths (such as historical records, oral legends), "bottom-up" influence and shape the cognition, emotions, and collective behavior of the Athenian community (e.g., inspiring their pride, provoking philosophical discussions about history and memory, prompting them to invest resources in its maintenance).

This continuous, bidirectional systemic coupling and mutual construction across physical and socio-cultural levels (i.e., the operation of BSO) is crucial for the new-plank ship, RS_New_Ship, to successfully maintain its identity and sameness as the "Ship of Theseus" under the reference of its core CRO_Ship (especially that socio-culturally constructed CR_Social/Linguistic_Symbol). The identity of the "Ship of Theseus" is ultimately dynamically maintained and jointly corroborated within this physico-socially mutually constructed BSO network.

V. Conclusion: Identity—An Assessment of EEA Trajectory Patterns Under CR Reference

Relatedness Theory transforms the identity problem of the "Ship of Theseus" from an inquiry into whether a static entity possesses some unchanging "essence" into an assessment of the continuity and stability of core relational patterns, functional performance, and historical-cultural identity of a dynamically evolving "Relatedness System (RS_Ship)" on its unique "Existence-Evolution Axis (EEA_Ship)," relative to the different hierarchical levels and natures of "Commonality References (CRs)" (especially its core CRO_Ship) that we choose as evaluation standards.

The replacement of parts (updating of planks) can be understood as RS_Ship, driven by its intrinsic "Existence-Evolution Paradox (EEP)" (e.g., the conflict between the natural decay of physical materials, v, and the need to maintain its identifiable form as a historical-cultural symbol, T_CR), adjusting its internal "Dependency Paths (DPs)" and replacing its constituent "Relative Entities (REs)" via the "Global Bidirectional Self-Organization (BSO) mechanism," in order to maintain its macroscopic pattern stability and core functional continuity as much as possible within its core CRO_Ship's "period of definitional power (T_CRO_Ship)." This is a costly (e.g., sacrificing the originality of material composition), dynamic balancing process.

Under the reference of those higher-order CRs that typically dominate the identity determination of a "Relatedness System" with profound historical-cultural significance (such as its unique morphological structure, core functional role, continuous trajectory in the stream of historical events, and most importantly—its stable designation in socio-cultural consensus and linguistic symbol systems), that ship continuously repaired and replaced with new planks (RS_New_Ship) is assessed as having extremely high "identity" with the original "Ship of Theseus." This is because it successfully maintains the continuity and stability of the key macroscopic DPs networks defined by these core CRs on its EEA_Ship, even though its material composition has completely changed. This profoundly embodies the principle of "continuity of relational patterns taking precedence over identity of material constitution" under specific (usually higher-order, functional, or socially constructed) CR reference, as well as the profound context-dependence and social constructivity of identity.

And that ship reassembled from all the replaced old planks (RS_Old_Wood_Ship) is a different "Relatedness System (RS)" with an entirely new starting point on its "Existence-Evolution Axis (EEA_Old_Wood_Ship)." Although it has the highest material similarity with some early state of the original RS_Ship under the reference of a lower-level "Material Composition Reference (CR_Material_Composition)," under the reference of those higher-order CRs more decisive for the identity of the "Ship of Theseus" (such as historical continuity, functional specificity, socio-cultural naming and convention), it lacks the continuous, key DPs connections and identity confirmation with the original RS_Ship, and thus its "identity" is very low.

Therefore, regarding the "answer" to the question "Which ship is the true Ship of Theseus?", *Relatedness Theory* holds that there is no absolute "right" or "wrong" independent of a reference (CR). It depends entirely on which CR(s) the questioner (or evaluator) chooses as the evaluation standard, and the choice of CR is, in turn, closely related to the questioner's cognitive framework, analytical purpose, the context they are in, and the socio-cultural background they are embedded in (these themselves also being broader CRs or AROs).

Relatedness Theory, by revealing this profound referential dependence, the dynamic evolution of relational networks (the continuous reconstruction of an RS on its EEA, driven by EEP and realized by BSO), and the social constructivity of identity, dissolves the absoluteness and binary opposition of traditional identity paradoxes, presenting a more complex, more dynamic, multi-level, mutually constructed cosmic tableau that better conforms to the way reality operates. It guides us from asking "what a thing is" to exploring "how a thing becomes what it is within relational networks and referential frameworks, and how it continuously evolves into what it will be."

Part Four: Relatedness Theory's Reconstruction of the "Observer Perspective Paradox": The Self-Reference Core, Hierarchical Reference, and Experiential Construction

The Ghost in the Inner Theater—

(When "I" Attempt to Imagine "My" Absence)

When a cognitive subject (whose cognitive system is understood in *Relatedness Theory* as a unique "Relatedness System, RS_Cognition") engages in a specific internal imaginative activity, the core setting of which (stipulated by a temporary, content-oriented "Imaginative Reference, CR_Imagination") is that the subject themself ("I") has died and been buried. However, in the resulting experiential imagined scene, the first-person perspective representing the subject, conducting the observation and experience (the "observer I"), seems to inevitably and stubbornly persist. This constitutes a profound puzzle: if the core content setting of the imagination is the subject's absence (death), why can the subjective perspective carrying the experience itself not be truly eliminated in the imagination? This challenges our understanding of the self, consciousness, and the limits of imagination.

The Answer Based on the Logic of Relatedness Theory—

Paragraph One: The Generation of Fantasy—Guided by a Content Reference (CR_Imagination), the Self-Organizing Activation of "Dependency Path (DPs)" Networks and the Emergence of "Relative Entities (REs)" Driven by BSO

To understand why the "observer perspective" stubbornly lingers in the imagined "theater of death," we must first examine, from the perspective of *Relatedness Theory*, how fantasy scenes are generated. Such internal activity is not a passive reflection of the external world, but an active construction process within the cognitive Relatedness System (RS_Cognition), driven by the "Global Bidirectional Self-Organization (BSO) mechanism" (this being the fundamental organizing principle originating from the interactive logic of the "bidirectional potential infinite extensibility" and "inherent necessary propensity" of the most fundamental "Primordial Vectors, PVs" constituting RS_Cognition, and permeating all cognitive processes).

When this specific, temporary "Imaginative Reference (CR_Imagination)"—"imagining the scenario where 'I' have died and been

buried"—is activated within RS_Cognition and achieves temporary (or local) dominance, it begins to act as a referential standard. Through the BSO mechanism, it guides and organizes the vast internal "Dependency Path (DPs)" network of RS_Cognition (these DPs connect the "potentiality" of memory information REs related to death, cemeteries, atmospheres of mourning, etc., conceptual semantic REs, and potential sensory feature REs). The core "commonality rules" of CR_Imagination (e.g., "posit the subject as physically dead," "construct visual, auditory, emotional elements related to a cemetery," "depict possible reactions of others") impose a kind of selective "propensity" or "activation preference," such that those DPs which match these rules or can collectively construct a scene conforming to these rules are preferentially activated and associated.

Through this self-organizing activation and interaction of DPs networks, guided by the reference of CR_Imagination and driven by the BSO mechanism, a series of "Relative Entities (REs)" related to the "death scene"—such as "visual imagery RE of a tombstone," "atmosphere of sorrow RE," "imagined mourning behavior of others RE," etc.—emerge from latent informational and experiential patterns, collectively constituting the specific content of this fantasy scene.

Paragraph Two: The Stubborn Presence of the "Observer I"—The "Core Self-Reference (CRO_Self)" as "Existence Basis" is the Structural Prerequisite for Experience to be Possible

The core of the problem—why, in content imagining the subject's "absence," the "subjective perspective" or "observer I" nevertheless stubbornly remains present—its answer lies in *Relatedness Theory's* fundamental understanding of "self" and "subjective experience," namely, the foundational, structural prerequisite role of the "Core Self-Reference (CRO_Self)."

CRO_Self is not an "entity-like self-center" located in a specific brain region, nor is it a program that can be arbitrarily "turned off." It is a highest-order, relatively stable set of "commonality rules" and a referential framework, defining "my being me," which has emerged through long-term self-organization via the BSO mechanism from the extremely complex DPs network dynamics within the cognitive subject (RS_Cognition, which can also be considered part of a broader RS_Self). The core functions of CRO_Self are:

1. Defining Subjectivity: Establishing a first-person experiential perspective, i.e., all experiences are "presented for me."

2. Sense of Ownership of Experience: Marking perceptions, thoughts, emotions, etc. (as REs) as "my" experiences.

3. Diachronic Identity and Sense of Continuity: Maintaining a relatively stable and continuous "self" pattern and "self-narrative" amidst the flux of time and experience.

Relatedness Theory emphasizes that any cognitive content needing to be incorporated into an individual's sphere of subjective conscious experience (whether REs originating from external perception or REs generated internally through imagination) must take this CRO_Self as its ultimate point of reference and integrative framework to be "experienced." CRO_Self does not merely provide a passive "observational angle"; it is, more importantly, the structural prerequisite and "existence basis" that actively constructs the entire field of subjective experience. Without the operation of this CRO_Self core referential system, an individual's experience would be fragmented, unassignable, and perhaps even unable to form what we understand as "conscious experience."

Therefore, even if the content-oriented CR_Imagination attempts to construct scene content in the imagined "plot" where the "subject (as a character in the drama) is absent," for this scene to exist in "my" consciousness as a fantasy that can be experienced by "me," it cannot bypass that CRO_Self which makes any "experience" possible and defines "me," this experiencing subject itself. That "observer I" persistently present in the imagined "theater of death" is precisely the necessary phenomenological manifestation of this CRO_Self—as the "existence basis" of RS_Cognition (or RS_Self)—continuously operating and positing itself as the "background" and "referential origin point" of experience. The "observer I" is the direct projection of CRO_Self's referential function in conscious experience.

Paragraph Three: Dissolution of the Paradox—CR Hierarchical Conflict, BSO's Dynamic Adaptation, and the Priority of CRO_Self

The apparent contradiction between the content setting of "subject (as character in the drama) absent" (stipulated by CR_Imagination) and the experiential framework of "subject (as observer) present" (stipulated by CRO_Self) profoundly reveals that within the cognitive Relatedness System (RS_Cognition), there exists a functional hierarchy among "Commonality References (CRs)" as well as a dynamic adaptation

mechanism mediated by the "Global Bidirectional Self-Organization (BSO) mechanism" when conflicts arise.
Hierarchy and priority of CRs: A temporary, content-oriented CR_Imagination (e.g., "imagine I am dead") usually resides at a lower or more specific level relative to CRO_Self. As the highest-order reference defining the possibility of all subjective experience and the identity-sameness of "self," CRO_Self's "definitional power" and operational stability typically take precedence over SRO-level or temporary CRs that are only responsible for organizing specific imaginative content or cognitive tasks. CRO_Self is the "existence basis" of RS_Cognition (or RS_Self), while CR_Imagination is merely a temporary, local "operational mode" activated upon this "existence basis."
BSO-mediated dynamic adaptation (akin to a cognitive-level CDR or a more fundamental EEP response): When the "subject absent" scene content REs guided by CR_Imagination conflict with the "subject present" experiential framework necessarily required by CRO_Self, the BSO mechanism within RS_Cognition will spontaneously undertake dynamic adaptation in an attempt to maintain overall cognitive coordination and the stability of CRO_Self (this is a manifestation of EEP at the cognitive level, i.e., the tension between v (the conflicting content introduced by CR_Imagination) and T_CRO_Self (the stability demand of CRO_Self)). This adaptation may manifest as:

1. "Marking" and "interpretive reconstruction" of cognitive content: RS_Cognition might, via the BSO mechanism, mark the "subject absent" content REs generated by CR_Imagination at an informational level as "imagined," "unreal," or "hypothetical," and may simultaneously activate some explanatory REs (e.g., "this is just a scene I'm imagining," "I know I am alive and imagining this"), thereby integrating this seemingly contradictory content into a coherent "imaginative experience" within the framework of CRO_Self. At this point, the "observer I" (manifestation of CRO_Self) and the "imagined-to-be-dead I" (the character RE set by CR_Imagination) are distinguished as cognitive objects of different levels.

2. Reduction of "manifestation intensity" or "belief weight" of conflicting content: If the conflict is too strong, BSO operation might also lead to a significant reduction in the "manifestation intensity" or "belief weight" of those content REs directly conflicting with CRO_Self's core rules (e.g., "I exist"), causing them to become vague, uncertain, or "marginalized" in subjective experience.

3. Interruption of fantasy or switching of dominant CR: If the conflict between the "subject absent" content guided by CR_Imagination and CRO_Self's fundamental existential reference is too intense, exceeding the range that RS_Cognition's current BSO mechanism can effectively integrate (possibly approaching its cognitive-level "existence-bearing capacity, C_max"), then this imaginative activity itself might be interrupted due to inability to maintain its coherence as "my experience," or RS_Cognition's dominant CR might switch from CR_Imagination back to the more stable, more fundamental CRO_Self or another cognitive CR (e.g., perception of the real environment), leading to the collapse of the fantasy scene.

Dissolution of the paradox: Therefore, the so-called "observer perspective paradox," in the view of *Relatedness Theory*, is not a true logical paradox but reveals the hierarchical difference and dynamic priority between "CR of experiential content" and "CR of experiential framework." As long as fantasy, as an "experiential" activity that can be consciously perceived by the subject and possesses a first-person sense of belonging, is in progress, then the "Core Self-Reference (CRO_Self)," as the structural prerequisite and "existence basis" for this experience to be possible, is necessarily present and continuously operating. The stubbornness of the subjective perspective ultimately proves that in our cognitive structure, that CRO_Self which defines "my being me" and makes all subjective experience possible, its operation is an indispensable, pre-existing (at logical and functional levels) background condition and referential framework for all cognitive content experienced by "me" (including imaginative content).

Part Five: On the Cosmos’s ‘Being’ (□), ‘Laws’ (□), ‘Essence’ (□), ‘Knowing’ (□), and ‘Meta’ (□)

First Question: On the "Being" (□) of the Cosmos—The Origin, Substrate, and Enigma of Existence's Genesis

What is the ultimate "Being" of the cosmos? How does it arise or "emerge" from "non-existence" or some presupposed "potentiality" (e.g., quantum vacuum fluctuations, Platonic mathematical structures, pure logical possibilities, or an undifferentiated sea of cosmic consciousness)? Is its most fundamental "Substrate" the perceivable matter-energy and spacetime manifold, the invisible dark matter and dark energy, a more underlying stream of quantum information bits, a priori mathematical laws and symmetry principles, or perhaps some "Meta-reality" that transcends our current understanding and might unify matter, spirit, and mathematics? Does "existence" itself possess some "pure potentiality" or "impulse to exist" independent of any specific form?

Answer—

The "Being" of the Cosmos: *Relatedness Theory's* Ultimate Ontological Tableau—Self-Organized Emergence from Infinite Potentiality to Relational Reality

In humanity's eternal inquiry into the "cosmos" we inhabit, the question, "What is the ultimate essence of Being?" has always occupied a central position. How does it arise or "emerge" from some presupposed state of "non-existence," or some assumed "potentiality" (for example, quantum vacuum fluctuations in some physics conjectures, Platonic mathematical structures in philosophical speculation, pure logical possibilities, or even the undifferentiated sea of cosmic consciousness mentioned in certain Eastern wisdom traditions)? Is what we typically perceive as its most fundamental "Substrate" the perceivable matter-energy and the spacetime manifold of our experience? Or is it the as-yet invisible dark matter and dark energy? Or perhaps, at a deeper level, the quantum information bitstreams speculated by some theories, or a priori mathematical laws and symmetry principles? Does there exist some "Meta-reality" that transcends our current understanding and could unify the material, spiritual, and mathematical realities we currently know? More fundamentally, does "existence" itself possess some "pure potentiality" independent of any specific manifested form, or an intrinsic "impulse to exist"?

Relatedness Theory's response to this series of ultimate questions concerning "the origin, substrate, and genesis of Being" is not to attempt to provide a simple list of "real things" of "what the cosmos is ultimately made of," nor is it to depict a "creation myth" with a specific beginning and end. On the contrary, it aims, through its unique "primacy of relations" ontology and non-teleologically directed dynamic evolutionary principles, to reconstruct our understanding of "substrate," "origin," and "reality" itself. In doing so, it reveals how "existence," in the absence of an external designer and intrinsic presupposed purpose, self-organizes and emerges from pure possibility, and continuously evolves and reshapes itself.

I. The Ultimate "Substrate" and Logical Starting Point of Existence: The Sole, Infinitely Potential "Pure Being" and its Relative "Pure Nothingness"

Relatedness Theory first fundamentally brackets any form of ultimate "substrate" or "real thing" presupposed to possess intrinsic attributes—whether it be matter in our experience (such as particles, fields, strings), energy, spacetime manifolds, or theoretically speculated information bitstreams, mathematical structures, or even some spiritual entity or cosmic consciousness. All these, within the ontological framework of *Relatedness Theory*, are not the initial starting point of the cosmos, but are phenomena within specific "Relatedness Systems (RSs)" or rules defined by their core "Commonality References (CRs)," emerging from a more fundamental source.

The sole, true Ontological Ground of the cosmos is "Pure Being." "Pure Being" is not some "Something" simply opposed to traditional philosophy's "Absolute Nothingness"; nor is it some "thing" that can be objectified. It transcends this simple dichotomy, being an infinitely rich, completely undifferentiated potentiality field intrinsically containing eternal random fluctuations (Field of Infinite Potentiality). It is the ultimate source of all cosmic possibilities—including known physical possibilities, mathematical and logical possibilities, possibilities of consciousness and phenomenal experience, and indeed all other possibilities currently entirely unimaginable to us. Before the manifestation of any specific, structured "Relatedness System (RS)," there are no presupposed distinctions, boundaries, structures, or orders within "Pure Being"; it can either be understood as perfect symmetry (or more accurately, as a pre-specificational whole that transcends the very concepts of symmetry and asymmetry).

The core properties of "Pure Being" are:
Infinity: The potentiality it contains is inexhaustible, meaning it can provide an infinitely diverse combination of "Primordial Vectors (PVs)" and their "inherent necessary propensities" for forming all possible relational networks and structural patterns.
Undifferentiated State: Before any specific "Commonality Reference (CR)" emerges from "Pure Being" via the "Commonality Self-Activation Mechanism (CSAM)" and the "Global Bidirectional Self-Organization (BSO) mechanism" to establish a local "existence basis" and "rules of distinction," there are no pre-solidified distinctions, boundaries, structures, or orders within "Pure Being." It is the pre-specificational whole from which all specifications become possible.
Non-Substantiality: "Pure Being" is not some "thing" or "substance" that can be denoted; it does not possess any of the specific attributes (e.g., it has no mass, no definite spatial location, no specific energy state, etc.) we typically assign to traditional entities.
Intrinsic Indeterminacy/Eternal Fluctuation: Precisely because of its infinite richness and complete undifferentiatedness, "Pure Being" itself cannot maintain absolute stillness or a completely determinate state. It intrinsically and ontologically contains eternal, minute, non-directional random fluctuations. These fluctuations are not some extraneous "noise" or a perturbation that needs to be "calmed," but are an inherent attribute of its ontological characteristic of infinite potentiality, a direct manifestation of its dynamic nature incapable of "solidification." These eternal intrinsic fluctuations constitute the latent "generative propensity" of "Pure Being" (where "propensity" here means it is not inert but full of the possibility of change, not that it has some "purpose" to generate specific things), and are also the most primordial, most universal "source of possibility" and "dynamic perturbation background" in the cosmos of *Relatedness Theory* for all change, all activation of "Dependency Paths (DPs)," and all structured "Relatedness Systems (RSs)" to emerge from potentiality.
Logically and relatively coexisting with "Pure Being," this sole ontological cornerstone, is the concept of "Pure Nothingness (PN)." In *Relatedness Theory*, "Pure Nothingness" is by no means traditional "absolute nothingness" or "non-existence." It is precisely defined as: that vast, boundless potential state within "Pure Being" which, relative to any specific, manifested "Relatedness System (RS)" and its core "Commonality Reference (CR)," remains unactivated by that CR's "definitional power," unincorporated into that RS's current organizational

structure and operational rules. "Pure Nothingness" is the relative unmanifested state of "Pure Being"; its existence and meaning depend entirely on the establishment of a CR. It is the logical boundary of manifested existence, the infinite ocean of unactualized possibilities, and the "veiling curtain" that profoundly affects our understanding of causality and reality.

II. The Origin of Existence: "Relational Possibility" Rooted in the "Inherent Necessary Propensity" of "Primordial Vectors (PVs)" and (Emergent in BSO) "Commonality Rules"

Within this ocean of infinite potentiality that is "Pure Being," what makes specific, structured "existence" possible? The answer given by *Relatedness Theory* is: "the possibility of relation." In the "primacy of relations" ontology of *Relatedness Theory*, the fundamental units constituting the "reality" we experience are not isolated, point-like "entities," but latent "Dependency Paths (DPs)" connecting various possibilities.

"Primordial Vectors (PVs)" as potential distinguishable units carrying "inherent necessary propensity": To conceptualize how the infinite potentiality of "Pure Being" possesses intrinsic "distinguishability" and provides the initial rule basis for the generation of "relations," *Relatedness Theory* introduces the hypothetical concept of "Primordial Vectors (PVs)." PVs are not physical entities but are potentiality units logically distinguishable from "Pure Being," carrying the most fundamental "inherent necessary propensity." This "inherent necessary propensity" is the intrinsic specification by which a PV can be considered a discussable "unit" and participate in subsequent relation generation, i.e., its unique "way or potentiality of existence and interaction." This "propensity" is the initial source of rules for the cosmic "relational grammar"; it precedes the encoding of any specific "commonality labels."

The "bidirectional potential infinite extensibility" of PVs and the logical genesis of "Global Bidirectional Self-Organization (BSO)": Each PV possesses a "bidirectional potential infinite extensibility"; its potential range of relatedness and influence is, in principle, infinitely extensible, permeating the entire "Pure Being" background. When these PVs, carrying "inherent necessary propensities," undergo the most primordial interactions under the action of "Pure Being's" eternal fluctuations, they will necessarily influence, specify, and shape each other in a manner consistent with their "inherent necessary propensities." This most primordial, universally existing, continuously ongoing process of mutual

influence and co-shaping is the "Global Bidirectional Self-Organization (BSO) mechanism" in its most fundamental, most ontological manifestation. BSO is the intrinsic logical and dynamic basis for "Relational Reality" to germinate and be structured from "Pure Being" potentiality; it pre-exists and lays the foundation for the operation of all subsequent structural generation mechanisms.

"Potential commonality rules" as emergent results of BSO interaction at the PV level: Under the continuous action of this most primordial BSO (based on the interaction of PVs' "inherent necessary propensities" and "Pure Being" fluctuations), certain PVs, due to some (possibly statistical) "matching," "complementarity," or "synergy" of their "inherent necessary propensities," may more easily form relatively stable or repeatable "interaction modes" or "associative combinations." These relatively stable or repeatable "interaction modes" or "associative combinations" can be regarded as the result of PVs' "inherent necessary propensities" being "refined," "strengthened," or "organized" during the BSO process, thereby giving rise to more specific specifications that can be conceptualized as "potential commonality labels" or "potential commonality rules." That is to say, "potential commonality labels" are not some "attributes" pre-fixed on PVs when they are "created." Rather, they are an expression of "relational-specification potentiality" that is gradually clarified and stabilized through the interaction, mutual screening, and mutual "shaping" of PVs driven by their most fundamental "inherent necessary propensities" via the initial BSO process. These emergent "potential commonality rules" constitute the intrinsic basis for subsequent "Commonality Self-Activation Mechanism (CSAM)" selection and activation.

The origin of existence is "the possibility of relatedness" and its emergent "rules": Therefore, in the vision of *Relatedness Theory*, the origin of existence is not some pre-existing material, energetic, or informational entity, but the infinite "network of relational possibilities" latent within "Pure Being's" infinite potentiality, manifested by the "inherent necessary propensities" of "Primordial Vectors (PVs)" and their universal interactive logic under "Global Bidirectional Self-Organization (BSO)," as well as the "relational grammar" of "potential commonality rules" gradually emerging and stabilizing from this universal interaction. The "codex" of the cosmos is written in this most fundamental language of "relation."

III. The Genesis of Existence: The Probabilistic Emergence via "Commonality Self-Activation Mechanism (CSAM)" within the

BSO Framework and the Birth of the First "Commonality Reference (CR)"

The transition from the pure possibility of "Pure Being" to actual, structured "existence" (i.e., the prototype of the first stably existing "Relatedness System, RS") has as its core "genesis" mechanism the "Commonality Self-Activation Mechanism (CSAM)." CSAM itself is not an isolated operating mechanism but a highly concentrated, landmark manifestation of the "Global Bidirectional Self-Organization (BSO) mechanism" (originating from the interactive logic of PVs) at that specific "origin" stage when the cosmos emerges its first stable structure—the "Commonality Reference (CR)"—from the pure potentiality background.

Mechanism Elucidated:

Continuous triggering by "Pure Being" fluctuations: The eternal intrinsic random fluctuations of "Pure Being" continuously provide triggering opportunities, breaking the temporary uniformity of "Pure Being" potentiality (in some local region), causing instantaneous interactions and mutual "perception" of "propensities" between PVs (especially those "proximate" due to fluctuations).

Selection by "potential commonality rules" and the amplifying effect of BSO: The "inherent necessary propensities" of PVs and the "potential commonality rules" emerging from their early BSO interactions (possibly already initially manifesting as "relational preferences" or "structural templates" of certain PV combinations) act as selectors. When PVs with matching or complementary "commonalities" interact under the perturbation of "Pure Being" fluctuations, the probability of them activating latent "Dependency Paths (DPs)" and forming more stable relational patterns is significantly amplified through BSO's positive feedback and mutual lock-in effects.

Probabilistic and contingent nature of DPs activation: The activation of initial DPs, and the emergence of CR prototypes constituted by these DPs, is a probabilistic event, not a deterministic process, and is fraught with profound contingency. This determines that the "genesis" of the cosmos is not a unique, necessary path.

Synergistic dual paths of CSAM (as a specific mode of BSO in the CR origin phase): The operation of CSAM may involve the two primary (or synergistically operating) paths previously discussed: "Superpositional Emergence" (through the statistical convergence or "resonance" of a large number of PVs' "inherent necessary propensities" against the fluctuating background of "Pure Being," producing preliminary "information foci" or "seed foci," which may themselves already possess

initial CR characteristics capable of attracting and organizing surrounding PVs as references) and "Entangled Stabilization" (through PVs with strong "commonality" interaction propensities, driven by BSO, preferentially and probabilistically activating latent "Dependency Paths (DPs)" between them, forming real connections carrying mutual determination, and further, through positive feedback and relational lock-in, self-organizingly "weaving" stable CR structures with intrinsic organizational principles; at this point, the CR emerges as a macroscopic stable pattern or organizational core from the overall dynamic evolution of this DPs network).

These two modes are not mutually exclusive but may intertwine, complement each other, or even play different dominant roles at different microscopic stages of "genesis" or in the emergence of different types of CRs, collectively constituting the rich and profound tableau of the first CR(s) generating from "Pure Being" potentiality. For example, a preliminary, faint CR prototype formed via "Superpositional Emergence" (perhaps a temporary "potentiality density anomaly zone"), once formed, the "commonality rules" it embodies and the (extremely weak) "Defining Field" it forms may, via the BSO mechanism, promote or alter the probability distribution and interaction modes of surrounding PVs activating DPs via "Entangled Stabilization," thereby accelerating or guiding the "weaving" and "solidification" of more stable, more complex CR structures.

IV. The Essence of "Genesis": A Relative Starting Point on the EEA Driven by EEP, and its "Historical Narrative" Retroactively Constructed by the Current CR within the BSO Framework

Relatedness Theory offers a dually relative, profound philosophical elucidation for what we commonly understand as the cosmic "genesis" or "Big Bang" event. It acknowledges this as an extremely significant "Commonality Reference (CR)" fundamental reconstruction event (i.e., a "displacement" or emergence of CR_Cosmos) on our current observable universe's "Existence-Evolution Axis (EEA_Cosmos)," marking the beginning of its specific period of existence. Simultaneously, however, it emphasizes that our scientific depiction and philosophical understanding of the specific form, process, and meaning of this "genesis" event are necessarily profoundly influenced by the "definition" and "projection" rules of our current universe's core "Commonality Reference (CR_Cosmos_Current)," and are retroactively constructed via the "Global Bidirectional Self-Organization (BSO) mechanism" into a "historical

explanatory structure" highly self-consistent with the current state and laws of the universe.

Not an absolute "creation ex nihilo" or a unique "creation event":

First, *Relatedness Theory* does not consider what we know as the "Big Bang" to be a "creation" event driven by some force external to "Pure Being," wherein a unique "cosmic entity" is born from "absolute nothingness."

It is primarily understood as a process wherein the infinite potentiality of "Pure Being," based on its intrinsic eternal fluctuations and the "inherent necessary propensities" of PVs and the "potential commonality rules" emerging from their early BSO interactions, through probabilistic self-organization and exploration by CSAM (as a specific manifestation of BSO), at some (for us) extremely crucial moment, accidentally crossed a certain critical threshold. This resulted in the emergence of the initial, self-sustaining and expanding, macroscopically scaled structured "relational network." This process might have been accompanied by the birth of the first (or a series of) core "Commonality Reference(s) (CR_EarlyUniverse or CR_Cosmos_Initial)" of our observable universe. This was a natural emergence, devoid of external designers, presupposed purposes, and fraught with contingency.

A relative starting point on EEA_Cosmos, not the absolute beginning of ontological existence:

More crucially, "genesis" or the "Big Bang," in the grander "Existence-Evolution Axis (EEA)" perspective of *Relatedness Theory*, is not the absolute beginning of "existence" ontologically. "Pure Being" potentiality itself may be without beginning or end (or rather, it transcends our concept of "time" understood based on specific CRs).

The "Big Bang" that we can trace or infer is more appropriately understood as: merely an extremely significant, landmark event of fundamental "displacement" or emergence of the core "Commonality Reference (CR_Cosmos)" on its own EEA_Cosmos for our current macroscopic "Relatedness System (RS_Cosmos)." This event defined the relative initial state of this specific period of our existence (e.g., extremely high energy density, specific symmetry breaking patterns) and the foundational framework for the physical laws we currently observe to take effect (the "commonality rules" solidified by CR_Cosmos).

"Prior" to this (in the non-linear sequential sense of EEA, not our experienced linear time), there could well have existed countless other "cosmic epochs" or "forms of existence," following different core CRs and having undergone innumerable stabilizations and reconstructions.

EEA_Cosmos might extend infinitely into its "logical antecedents," its ultimate "starting point" itself dissolving into the unknowable potentiality of "Pure Being."

Therefore, "genesis" is not a leap from "absolute nothingness" to "absolute being," but a profound "structural phase transition" or "displacement of existence basis" from a (for us) unknown, antecedent "form of existence" (possibly also an RS governed by some CR, or some chaotic potential state closer to "Pure Being") to this specific cosmic form of ours, driven by its intrinsic "Existence-Evolution Paradox (EEP)" and probabilistic self-organization (BSO/CSAM).

"Post-dictive" mechanism and BSO's retroactive construction: The current CR's shaping of the "origin narrative":

According to *Relatedness Theory's* "Principle of Relative Causal Restructuring" (a "displacement" of a core CR on the EEA is necessarily accompanied by a reconstruction of its RS's internal causal structure), we must be extremely cautious about the traditional notion of viewing the "Big Bang model" depicted by our current science as a "first cause" existing independently of our current cosmic state and absolutely prior to everything.

Relatedness Theory posits that our understanding and scientific construction of the "past" (including cosmic origin) are profoundly influenced by the "definition" and "projection" rules of our current universe's overall existential state and its core "Commonality Reference (CR_Cosmos_Current)" (i.e., that referential framework defining the current universe's basic laws and structure).

When a new cosmological core reference (CR_Cosmos_New, e.g., the CR of the cosmic stage we currently inhabit) emerges and stabilizes at a key "transition node" on its EEA_Cosmos through BSO and possibly reactivated CSAM, this new CR_Cosmos_New, with its intrinsic "commonality rules" and structural characteristics, begins, via the BSO mechanism, to redefine and reshape the connection modes, activation probabilities, and stability conditions of all "Dependency Path (DPs)" networks within its context. This necessarily includes those DPs logically or informationally transmitting information about the "past" and "origin."

The "Global Bidirectional Self-Organization (BSO) mechanism" plays a key dynamic role in this process. It is not an intelligent agent with some "purpose" (e.g., "maximizing explanatory power" or "seeking the simplest origin story"), but provides such a mechanism that: the rules defined by the new CR_Cosmos_New (e.g., new physical laws, new causal structures, new information processing paradigms, new observable

boundaries) will, via DPs networks permeating RS_Cosmos, diffusely influence the entire system. This means:

1. Those potential "historical narrative patterns" (i.e., various possible explanatory "Relative Entities, REs_Origin_Story" about cosmic origin) that generate severe internal conflicts or logical inconsistencies with the rules of the new CR_Cosmos_New will find it difficult to gain stable DPs support. They might not be able to effectively manifest at all under the "projection rules" of the new CR_Cosmos_New, or even if manifested, they would, due to incompatibility with the overall relational network governed by the new CR, be marginalized, attenuated, or lose their status as "reasonable explanations" in subsequent BSO dynamic evolution.

2. Conversely, those potential "historical narrative patterns" possessing high "commonality resonance" and internal "self-consistency" with the rules and structure of the new CR_Cosmos_New are more likely, under BSO action, to be activated, strengthened, and "corroborated" and "mutually corroborated" by other "Relative Entities (REs)" existing in the current universe (e.g., REs_Observation we obtain through astronomical observations regarding cosmic background radiation, elemental abundances, galaxy distributions, etc.—these REs_Observation themselves also being manifested and interpreted under the reference of the new CR_Cosmos_New) via stable DPs networks.

Therefore, the specific picture of the "Big Bang" that we deduce and depict through scientific research today (e.g., details about the universe's early singularity state, inflationary process, and subsequent evolutionary stages) is not a presupposed "sole correct" or "simplest" "origin scenario," nor one actively "optimally selected" by BSO. It should rather be understood as: after the emergence and stabilization of a new cosmological core reference (CR_Cosmos_New), through the continuous operation of the BSO mechanism, a "historical explanatory structure (RE_Origin_Story)" probabilistically emerged from the infinite potentiality of "Pure Being" (including all possible historical path information and explanatory modes) and was screened and stabilized by the current universe's overall relational network (defined and shaped by the new CR_Cosmos_New), exhibiting high self-consistency and logical coherence with the current cosmic state and its fundamental laws.

The manifestation of this "cause" (cosmic origin) that we understand is, in some profound sense, the result of the current "effect"

(the present state of the universe and its dominant laws, defined by CR_Cosmos_New) acting, via the BSO mechanism, upon information and potentiality concerning the "past," and undergoing probabilistic screening and self-organizing stabilization according to CR_Cosmos_New's rules. It is not a "first cause" existing independently of the current cosmic existential state and absolutely prior to everything, but a relative, constructed (though this construction is not arbitrary but strictly constrained by current CR rules and DPs network dynamics) explanatory structure, interdependent with the current cosmic state and collectively constituting a larger-scale, dynamically evolving, self-consistent whole.

Key "transition nodes" on EEA_Cosmos (e.g., the emergence and "displacement" of some early universe core CR) are undoubtedly real structural reconstruction events that occurred. However, our cognition and articulation of their specific details and significance will necessarily be deeply imprinted by the CR_Cosmos_New we currently inhabit. This process ensures that our understanding of "origin" maintains maximum logical consistency and stability with our current cosmic state, but this "consistency" and "stability" are themselves results of evolution, a dynamic equilibrium spontaneously tended towards by RS_Cosmos under its intrinsic "Existence-Evolution Paradox (EEP)" and fundamental "existence-bearing capacity (C_max)" constraints, through periodic reconstruction of core CRs ("displacement" on EEA) and continuous adjustment of DPs networks (BSO operation), not some presupposed "optimization target." The entire process is strictly one where changes do not point to any presupposed goal: there is no presupposed "ideal origin story," only that "historical narrative" which, on the new "existence basis" (new CR), through the self-organization and dynamic screening of the relational network, ultimately stabilizes as the one most capable of integrating into the current overall tableau.

V. Does "Existence" Itself Possess Some "Pure Potentiality" or "Existential Impulse" Independent of Any Specific Form?—The Infinite Potentiality of "Pure Being" and the Intrinsic Transformative Propensity Driven by EEP

Transformation of the question and *Relatedness Theory's* answer:

Relatedness Theory does not discuss the existence of some independent "existential impulse" or some "pure potentiality" transcending "Pure Being," outside of "Pure Being" as the sole ontological cornerstone. "Pure Being" itself is the ultimate embodiment of infinite "pure potentiality"

encompassing all possibilities.

Instead, *Relatedness Theory* transforms the traditional philosophical inquiry into this seemingly intrinsic "existential impulse" or "generative desire" into an exploration of why manifested, finite, structured "Relatedness Systems (RSs)," under their profound ontological condition, necessarily exhibit a continuous propensity for change, evolution, and reconstruction.

"Evolutionary rate (v)" as the manifestation of an RS's aggregate intrinsic transformative propensity:

To exist is to be constrained; to be constrained is to tend towards change: Any RS manifested from "Pure Being" is merely a finite, local "specification" and "excision" of "Pure Being's" infinite potentiality. It is necessarily incomplete (the "Incompleteness of Foundation, IoF" of its core CR), and necessarily subject to the continuous influence and "possibility permeation" from its external, vast "Pure Nothingness" potentiality background (i.e., the part of "Pure Being" unactivated by it) ("Infinite Potentiality Pressure, IPP").

To exist is to be in contradiction; contradiction is impetus: The core CR defining an RS is itself incomplete, which intrinsically leads to logical and structural tension within its RS (IoF). Simultaneously, the "Dependency Path (DPs)" network and "Relative Entity (REs)" patterns constituting an RS also possess continuous microscopic dynamics and uncertainty ("Fluidity of Internal Relations, FIR"). An RS, as an open system, must also continuously cope with challenges and adaptive demands from its external dynamic environment ("Open System Adaptation, OSA"). Furthermore, maintaining the structural stability and functional effectiveness of an RS (especially its core CR) requires the continuous expenditure of a generalized "maintenance cost (h(T))" that may grow superlinearly with stability requirements, and the RS's overall "activity intensity" cannot exceed its finite "existence-bearing capacity (C_max)."

v as a passive yet necessary response to ontological conditions: All these factors—originating from an RS's finitude, incompleteness, openness, internal fluidity, and the fundamental tension with its infinite potentiality background—collectively constitute the intrinsic "evolutionary rate (v)" (the sum of its transformative propensities) driving that RS's continuous change and evolution. This v is not some active "life force" or "existential impulse," but rather the passive, yet mechanistically necessary, "structural adjustment pressure" or "transformative propensity" that finite, structured "existence" must exhibit via the "Global Bidirectional Self-Organization (BSO) mechanism" when facing its profound

ontological predicaments.

Conclusion: The so-called "existential impulse," in the view of *Relatedness Theory*, is not some a priori endowed, mysterious force transcending specific forms. Rather, it is the manifestation of the continuous transformative and evolutionary propensity (v), whose changes do not point to any presupposed goal, necessarily exhibited by any finite, structured "Relatedness System (RS)" in its fundamental relationship with "Pure Being/Pure Nothingness" and in the operation of its intrinsic "Existence-Evolution Paradox (EEP)." Existence, by virtue of its finitude, relatedness, and intrinsic contradictoriness, naturally contains the propensity towards change, reconstruction, and continuous "possibility exploration" on its "Existence-Evolution Axis (EEA)."

VI. Reconsidering the Ultimate "Substrate": "Relational Reality (DPs Network)" and its Dynamics, with "Pure Being" Potentiality as its Eternal Background and Source

Within the "primacy of relations" ontological framework of *Relatedness Theory*, when we inquire into the ultimate "Substrate" of the cosmos, the answer no longer points to any kind of presupposed "entity" or "material form" possessing fixed intrinsic attributes.

Transcending traditional entity-based substrate views (matter/energy/information/mathematics): *Relatedness Theory* posits that viewing matter, energy, spacetime, information, or even mathematical laws or symmetry principles, or any other specific form of "thing" or "rule" as we commonly understand them, as the ultimate "substrate" of the cosmos may be insufficiently fundamental. Or rather, these themselves, in the vision of *Relatedness Theory*, are more like different hierarchical levels and aspects of manifestation, or stable patterns, emerging from a more basic reality level centered on "relation," under the reference of specific "Commonality References (CRs)" and the operation of the "Global Bidirectional Self-Organization (BSO) mechanism."

For example, at the philosophical principled level of *Relatedness Theory*, we can conceptually understand:

Matter and energy: May be understood as relatively stable structural patterns (manifested as "Relative Entities, REs") exhibited by specific types of "Dependency Path (DPs)" networks, capable of carrying and transmitting interactions, and their dynamic effects of interaction within these DPs networks (e.g., the transmission and transformation of energy can be seen as some measure of DPs network state change).

Spacetime: May not be a pre-existing, absolute "container," but rather a macroscopic order and geometric property emerging self-organizedly via the BSO mechanism from the DPs network (which possesses specific connection and transmission attributes and permeates the cosmos), under the reference of a certain cosmological-scale core "Commonality Reference (CR_Cosmos)" that defines extensionality, sequential relations, and (relative) causal transmission characteristics. Different CR_Cosmos might give rise to "spacetimes" with different topological and metric properties.

Information: In *Relatedness Theory*, information is not an "entity-like" existence independent of relations. It is intrinsic to the connection of DPs themselves (the existence of a DP implies the establishment of "relational information"), to the mutual influence and determination transmitted via DPs (DPs are channels for information flow), to the "structural information" carried by REs as stable patterns of DPs networks, and to the "meaning information" and "contextual information" defined by CRs as "commonality rules." Information is an inseparable attribute and mode of operation of "Relational Reality."

Mathematical laws and symmetry principles: Their roots may lie in the infinite richness of "Pure Being" potentiality (containing all possible logical and structural patterns) and the most fundamental "inherent necessary propensities" and "interactive logic" of "Primordial Vectors (PVs)" (these might constitute the potential source of the most basic "mathematical axioms"). The specific mathematical laws and symmetry principles we observe are then manifested in specific "Relatedness Systems (RSs)" through the emergence of particular CRs (this emergent process itself might be accompanied by some form of "symmetry breaking," i.e., from the perfect symmetry of "Pure Being" to the local order defined by a CR) and the dynamic evolution of the DPs networks defined by these CRs (e.g., certain dynamic processes might exhibit some "conservation law," which can be seen as a stable emergent behavior of that CR's rules and DPs network characteristics).

Ultimate substrate = dynamic "Relational Reality (DPs network)" + infinite "Pure Being" potentiality as its eternal background and source: If one must seek a "substrate" in the sense of *Relatedness Theory*, then it primarily points to that dynamically evolving "Relational Reality" network itself, constituted by innumerable (possibly infinitely extending) "Dependency Paths (DPs)." However, this DPs network is not without a source; it ultimately originates from and is continuously activated and woven from the sole ontological cornerstone—the infinite potentiality of

"Pure Being"—and its operation and evolution are also continuously influenced by the "Pure Being" background (especially its interface with relative "Pure Nothingness").

But it must be emphasized that this "substrate" of *Relatedness Theory* is by no means a static, immutable "base." It itself intrinsically contains the fundamental dynamic mechanisms of generation, change, and reconstruction—namely, the "Global Bidirectional Self-Organization (BSO) mechanism" originating from PV interactive logic, manifesting as "Commonality Self-Activation Mechanism (CSAM)" for structural origin at specific stages, and the eternal "Existence-Evolution Paradox (EEP)" driving all finite RSs to continuously undergo "displacement" of their "existence basis" on their "Existence-Evolution Axis (EEA)."

Relatedness Theory as a theoretical exploration of "Meta-reality": In this sense, *Relatedness Theory* itself can be considered a philosophical theory about "Meta-reality." It attempts to describe that more fundamental operational logic—the logic of "relation," the logic of "self-organization," and the logic of "contradiction-driven evolution"—which is capable of generating all the levels of reality we experience (whether considered physical, informational, or spiritual; these may all be understood in *Relatedness Theory* as specific types of RSs or their internal REs/DPs/CRs).

Concluding Elucidation: The "Being" (□) of the Cosmos—A Dynamic Reality Eternally Generating in Relation, Contradiction, and Self-Organization

The "Being" of the cosmos, in the ultimate vision of *Relatedness Theory*, does not originate from some presupposed ultimate entity or some external, transcendent creative force. Rather, it is profoundly and entirely rooted in the sole, infinitely rich "Pure Being" potentiality itself, and through a series of intrinsic, self-organizing dynamic processes whose changes do not point to any presupposed goal, it manifests as the "Relational Reality" we experience and cognize, which is constantly evolving.

Its "reason" and "mechanism" for existence are intrinsic to the unified operation of the following interconnected core principles of *Relatedness Theory*:

1. The infinite potentiality of "Pure Being" and its eternal intrinsic fluctuations: Provide all "raw materials" ("Primordial Vectors, PVs" and their "inherent necessary propensities") for existence to be possible and a continuous "source of change."

2. The universal operation of the "Global Bidirectional Self-Organization (BSO) mechanism": As the "logical genesis" originating from PVs' "bidirectional potential infinite extensibility" and "inherent necessary propensities" and their interaction, BSO is the fundamental organizing principle and ubiquitous mode of operation at all levels and in all links, from the most microscopic potentiality interactions to the evolution of the most macroscopic "Relatedness Systems (RSs)."

3. The structural origin role of "Commonality Self-Activation Mechanism (CSAM)" within the BSO framework: Based on PVs' "potential commonality rules" (these rules themselves also being emergent results of early BSO interactions) and "Pure Being" fluctuations, CSAM, through probabilistic self-organizing processes, activates and stabilizes "relational possibilities" from potentiality into initial actual connections ("Dependency Paths, DPs") and the first (or first batch of) stable "Commonality References (CRs)."

4. "Responsive weaving" of DPs networks guided by CRs' "Defining Fields": The emergence of CRs establishes a local "existence basis" and "operational rules," and through their "Defining Fields" under BSO action, guides the generation and organization of more DPs, thereby weaving the basic fabric of "Relational Reality."

5. "Projection" and manifestation of REs and construction of RSs under a hierarchical CR framework: Under the reference and "projection" of hierarchical CRs (SRO, CRO, ARO), DPs network patterns stably manifest as "Relative Entities (REs)" (which we experience), possessing specific patterns and (possibly) intrinsic informational states (e.g., information about their own certainty or self-consistency under that CR reference), and without intrinsic essence. These collectively constitute "Relatedness Levels (RLs)" and "Relatedness Systems (RSs)" with specific identities and functions.

6. The eternal drive of the "Existence-Evolution Paradox (EEP)" under the constraint of "existence-bearing capacity (C_max)": Any manifested, finite RS necessarily faces its intrinsic fundamental conflict (EEP) between its overall "evolutionary rate (v)" (originating from its continuous tension with infinite potentiality, the incompleteness of its own rules, the fluidity of internal relations, and the adaptive demands of an open environment) and its core CR's "period of definitional power (T_CR)" and corresponding generalized "maintenance cost (h(T))", operating under that RS's finite "existence-bearing capacity (C_max)".

This paradox is the fundamental impetus driving an RS along its "Existence-Evolution Axis (EEA)" to experience stability and periodic (though not strictly deterministic) reconstruction (fundamental "displacement" of its core CR).

7. Continuous interaction with relative "Pure Nothingness": Any manifested RS continuously interacts with its relative "Pure Nothingness" (i.e., the infinite potentiality in "Pure Being" not activated and organized by its current CR) (e.g., IPP is a source of v, and "Pure Nothingness" is also an "ocean" for the emergence of new possibilities). This interaction is a manifestation of an RS's openness and evolutionary potential.

Therefore, in the vision of *Relatedness Theory*, the "Being" of the cosmos, its ultimate "substrate," is dynamic "Relational Reality" (i.e., the sum total of all RSs, constituted by DPs networks, hierarchical, and constantly evolving, if we can generalize thus) and its eternal background and source, the infinite "Pure Being" potentiality. The "genesis" of "existence" is not a singular, past event, but a continuous, ubiquitous process of various structured "Relatedness Systems (RSs)" probabilistically and hierarchically emerging from "Pure Being" potentiality through BSO and CSAM and other self-organizing mechanisms. The so-called "existential impulse" is not some mysterious a priori force, but the manifestation of the continuous transformative and evolutionary propensity (v), whose changes do not point to any presupposed goal, necessarily exhibited by any finite, structured "existence" in its fundamental relationship with infinite potentiality and in the operation of its intrinsic "Existence-Evolution Paradox (EEP)." The matter, energy, spacetime, information, and even the mathematical and physical laws we experience and cognize, may all be specific manifestations or stable patterns of this deeper, "relation"-centric, dynamically evolving "reality" at different levels and in different "Commonality Reference (CR)" contexts.

Relatedness Theory ultimately unifies the two age-old questions, "What is existence?" and "Why does existence exist?", into a single profound answer: Existence is the infinite potentiality of "Pure Being," which, driven by its intrinsic eternal fluctuations and the interactive logic of the "bidirectional potential infinite extensibility" and "inherent necessary propensity" inherent in "Primordial Vectors (PVs)" (i.e., the "Global Bidirectional Self-Organization (BSO) mechanism"), ignites initial references (CRs) through "Commonality Self-Activation (CSAM)," weaves the relational web of "Dependency Paths (DPs)," gives rise to hierarchical

"Relative Entities (REs)," "Relatedness Levels (RLs)," and "Relatedness Systems (RSs)," and, under the impetus of the eternal "Existence-Evolution Paradox (EEP)" and the constraint of its "existence-bearing capacity (C_max)," continuously experiences "displacements" of its "existence basis" (core CR) along its unique "Existence-Evolution Axis (EEA)," while in continuous interaction with relative "Pure Nothingness," undergoing a dynamic generation and hierarchical evolution of structures—one that is eternal, self-organizing, fraught with contingency and creativity, and whose changes do not point to any presupposed goal.

Second Question: On the "Laws" (□) of the Cosmos—The Origin of Order, Cosmic Understandability, and the Enigma of the Nature of Laws

The cosmos we experience exhibits astonishing order and regularity, which we typically call the "Laws of Nature." So, what exactly are these "laws"? Are they eternal "legislation" inherent in the cosmos, pre-existing and governing all phenomena, or merely effective tools of the human mind for inducing from and predicting experiential phenomena? If the cosmos evolved from some simpler or more chaotic state, what is the origin of these "laws" themselves, which are capable of shaping and maintaining complex, ordered structures? Why does the cosmos exhibit such profound "understandability," capable of being grasped by our reason (e.g., through mathematical language)? Finally, are these specifications we call "laws" themselves absolutely immutable, or might they also, with the evolution of the cosmos or in different existential circumstances, exhibit some deeper relativity and mutability?

Answer—

The "Laws" of the Cosmos: *Relatedness Theory's* Ontological Reconstruction—As CR-Emergent, Context-Dependent, Dynamic Embodiments of Relational Rules

The cosmos we experience, and all possible "Relatedness Systems (RSs)," do indeed exhibit astonishing order and regularity, which we generally term the "Laws of Nature." Faced with a series of fundamental philosophical inquiries—what these "laws" actually are, how they originate, why they can be understood by us, and whether they are eternally immutable—*Relatedness Theory* provides a unique set of answers based on its "primacy of relations" ontology and dynamic evolutionary principles.

I. The Ontological Status of "Laws": Not A Priori Objective "Legislation," but the Embodiment of Intrinsic "Commonality Rules" Emergent with "Commonality References (CRs)"

Negation of "law-entities" independent of relations and references: *Relatedness Theory* first and foremost fundamentally denies the existence of some kind of objective, eternal "physical law" entity existing outside of specific "Relatedness Systems (RSs)," their internally woven "Dependency Path (DPs)" networks, and the "Commonality References (CRs)" that define their "existence basis" and operational modes. In the

view of *Relatedness Theory*, "laws" are not "source code" engraved on the "cornerstone of existence" at the birth of the cosmos, nor are they perfect mathematical forms existing in some Platonic world of ideas awaiting our "discovery." They do not possess an a priori ontological status independent of the RSs they act upon and the CRs that define their context.
The ontological root of "laws" lies in the emergence and definition by CRs:

1. The most fundamental "rule potentiality" originates from the "inherent necessary propensity" of "Primordial Vectors (PVs)" and the interactive logic of "Global Bidirectional Self-Organization (BSO)": *Relatedness Theory* posits that the initial germination of all "regularity" in the cosmos can be traced back to the infinite potentiality of "Pure Being," to the "inherent necessary propensity" (i.e., their unique "way or potentiality of existence and interaction") inherent in "Primordial Vectors (PVs)" as distinguishable units of potentiality. These PVs, interacting primordially via the "Global Bidirectional Self-Organization (BSO) mechanism" (this being the "logical genesis" originating from PVs' "bidirectional potential infinite extensibility" and "inherent necessary propensity" and their interaction) against the background of "Pure Being's" eternal fluctuations, their "interactive logic" itself contains the latent "grammatical rules" for forming specific "relational patterns."

2. The "Commonality Self-Activation Mechanism (CSAM)" within the BSO framework gives rise to the first CR, solidifying the initial "commonality rules": When BSO, operating at the PV level, reaches a certain stage, and through the "Commonality Self-Activation Mechanism (CSAM)" (as a specific manifestation of BSO in the structural origin phase, based on PVs' "inherent necessary propensities" and "potential commonality rules" gradually clarified in early BSO interactions, via the synergistic dual paths of "Superpositional Emergence" and "Entangled Stabilization") successfully gives rise to the first (or first batch of) stable "Commonality Reference(s) (CR)," this CR itself embodies and solidifies a set of "commonality rules" "selected" and "stabilized" from the innumerable "relational propensities" of PVs.

3. The "definitional power" of a CR is the direct source of "laws": What truly transforms these latent "regularities" into "laws" that actually operate and are identifiable and describable within a specific "Relatedness System (RS)" or its internal "Relatedness Level (RL)" is this (or these) emergent CR(s). A CR, through its self-organized, stable

relational structural pattern, exerts its core "definitional power," i.e., within its sphere of influence (its "Defining Field"), it specifies and constrains the connection modes and activation probabilities of DPs, and the manifestation patterns and "codes of conduct" for the interaction of "Relative Entities (REs)."

"Laws" as dynamic embodiments of "commonality rules" defined by specific CRs: Therefore, what we commonly understand as cosmic "laws," in the view of *Relatedness Theory*, are the sum total of those relatively stable "commonality rules" and "organizational principles" contained in and exhibited by a specific CR (e.g., the cosmological core CRO_Cosmos defining the basic operational mode of our current observable universe, or a more local SRO defining a specific physical phenomenon). "Laws" are direct manifestations of CR functions, the "codes of conduct" for DPs networks under that CR's frame of reference, and the "evolutionary script" for REs under that CR's "projection." "Laws" are no longer abstract, external decrees, but concrete, dynamic modes of order intrinsic to specific CR structures and their dynamics, the operational modes of Relational Reality itself.

II. The Origin of "Regularity" and "Orderliness" Exhibited by "Laws": Self-Organized Generation from "Pure Being" Potentiality via BSO/CSAM to CR Hierarchical Emergence

If the "genesis" of the cosmos begins with the undifferentiated potentiality and eternal random fluctuations of "Pure Being," then how could those relatively stable and universal "operational modes" (i.e., what we call "laws"), capable of shaping and maintaining a cosmos filled with complex structures and ordered hierarchies, possibly generate from an initial state that was seemingly chaotic or highly symmetrical? The answer from *Relatedness Theory* lies in a progressively layered process of self-organized generation, permeated throughout by the "Global Bidirectional Self-Organization (BSO) mechanism":

1. The infinite potentiality of "Pure Being" and the "inherent necessary propensities" of PVs are the initial "raw materials" and "selection preferences" for order to be possible: "Pure Being" provides infinite possibilities; the "inherent necessary propensities" of "Primordial Vectors (PVs)" introduce initial, not entirely random, "directionalities" or "preferences" into the interaction of these possibilities.

2. BSO's primordial interaction at the PV level screens and organizes "potential commonality rules": Under the continuous perturbation of

"Pure Being" fluctuations, PVs undergo primordial interactions via BSO. Certain PV combinations with "matching" or "synergistic" "inherent necessary propensities" may more easily form temporary, local "relational patterns" or "resonant structures." This process itself is a most basic "germination of order"; it screens and stabilizes initial "potential commonality rules" from the universal interactive logic of PVs.

3. CSAM, within the BSO framework and based on "potential commonality rules," gives rise to the first stable CR, achieving "symmetry breaking" and a "nucleus of condensation" for order: When these "potential commonality rules" accumulate to a certain degree and are amplified by BSO's positive feedback mechanisms, the "Commonality Self-Activation Mechanism (CSAM)" may be "ignited." Through the synergistic dual paths of "Superpositional Emergence" and "Entangled Stabilization," it spontaneously breaks the initial (possibly high) symmetry of "Pure Being" (or the local potentiality background), probabilistically giving rise to the prototype of the first (or first batch of) stable "Commonality Reference(s) (CR)." The birth of this CR, like a "crystal seed" dropped into a supersaturated solution, establishes a local "existence basis" and a preliminary set of "commonality rules," becoming the "organizational core" around which subsequent order can "condense" and expand.

4. A CR's "Defining Field" guides the "responsive weaving" of DPs networks via BSO, forming broader-scale ordered structures: Once a CR forms and stabilizes, its "Defining Field" exerts a passive, structural influence on the surrounding "Pure Being" potentiality (PVs) via the BSO mechanism, guiding those DPs compatible with that CR's rules to be "responsively activated" and "responsively woven" into a broader, ordered network possessing specific topological and dynamic characteristics.

5. Hierarchical emergence of CRs and trans-scale operation of BSO construct the complex hierarchical order of the cosmos: Higher-order, more complex CRs (e.g., core CROs defining "Relatedness Systems, RSs" at different levels such as galaxies, stars, planets, life, and even consciousness) can self-organize and emerge from the collective behavior of lower-level CRs and the DPs networks and REs they organize, through the continuous operation of BSO (possibly including higher-level, CSAM-like "structural solidification" processes). The hierarchical order of the cosmos (from elementary particles to large-scale cosmic structures, from inorganic molecules to complex life systems) is precisely the result of

these dynamic self-organizing processes of CRs continuously emerging, nesting, and interacting via BSO. What we call "laws" are the manifestations of "commonality rules" and "organizational principles" defined by these CRs at different levels and effective at those levels.

III. The Source of Cosmic "Understandability": The Potential for Profound "Resonance" at the Level of "Relational Logic" Driven by BSO Between Cognitive RS and Cosmic RS

Why does the cosmos exhibit such profound "understandability," capable of being grasped by our reason (even with abstract language like mathematics), as cognitive subjects (unique "Relatedness Systems, RS_Cognition")? *Relatedness Theory* attempts to provide a possible explanation from its "primacy of relations" ontology and the universal operational principles of "Global Bidirectional Self-Organization (BSO)":

1. Emergence and operation of cognitive subject RS_Cognition and its internal CR_Cognition: Our human cognitive abilities and rational thought, in the view of *Relatedness Theory*, also constitute an extremely complex "Relatedness System (RS_Cognition)." It internally possesses a network of "Commonality References (CR_Cognition)" (e.g., our inherent logical reasoning patterns, spatiotemporal perceptual frameworks, and mathematical language and scientific methodologies acquired through learning and cultural transmission) that define its operational rules and cognitive framework. These CR_Cognition themselves also emerge through long-term evolution and self-organization via the BSO mechanism from a more fundamental neurophysiological level (RL_Neurocognitive).

2. "Understandability" originates from the potential for profound "resonance" or "structural similarity" at the level of BSO-driven "relational logic" between cognitive CRs and cosmic CRs: If the hypotheses of *Relatedness Theory* are valid—that is, the generation, structure, and evolution of all things in the cosmos (all RSs), from the most microscopic PV interactions to the most macroscopic system operations, all follow the same fundamental, universal organizing principle, namely, the "Global Bidirectional Self-Organization (BSO) mechanism" (originating from the interactive logic of PVs' "bidirectional potential infinite extensibility" and "inherent necessary propensity"); and, furthermore, that our human cognitive system (RS_Cognition) and its internal CR_Cognition (especially those related to logic, mathematics, and pattern recognition) themselves also evolved and emerged under the universal operational logic of this same BSO. Then, the "ways" in which

our cognitive RS's internal CR_Cognition "organizes information," "constructs models," "identifies patterns," and "performs logical reasoning" might, at some profound, structural level, possess a certain "resonance," "structural similarity," or functional "commensurability" with the actual "operational modes" and "organizational logic" of the external cosmic RS (and the CR_Cosmos defining its "laws") (which also all originate from the same fundamental BSO). This potential "isomorphism" or "matching" at the level of "relational operational logic," mediated by common, underlying BSO organizing principles, between the cognitive subject and the cognized object (both being RSs), may be the profound reason why the cosmos can be understood by us, and why mathematical language can be an effective tool for describing cosmic "laws." We do not "discover" some absolute "mathematical truth" existing externally to us and then "apply" it to the cosmos. More likely, the mathematical referential framework (CR_Mathematics) emerging within our cognitive system, its very structure and logic, is, to some extent, an "internalized reflection" or "structural resonance" (possibly highly abstract and idealized) of the deep "relational patterns" and "organizational principles" exhibited by the cosmos (as a broader RS) under BSO action.

3. The effectiveness of mathematics as indirect evidence for BSO universality: From this perspective, the "unreasonable effectiveness" of mathematics in describing cosmic "laws" no longer seems so mysterious. It might, quite the contrary, corroborate a core hypothesis of *Relatedness Theory*: that there exists a "Global Bidirectional Self-Organization (BSO)" principle, originating from the interactive logic of "Primordial Vectors (PVs)," which is more fundamental and universal than the specific physical laws we currently know, and which simultaneously shapes both the "objective" operational modes of the cosmos and our "subjective" capacity frameworks for cognizing these modes.

IV. The Nature of "Laws": As Dynamic Embodiments of CRs, their Inevitable Evolution, Relativity, and Context-Dependence

Finally, regarding the question of whether "laws" themselves are absolutely immutable or might evolve and exhibit relativity, *Relatedness Theory* provides a clear, and also one of its most subversive, theoretical answers: what we call "laws," as manifestations of "commonality rules" defined by specific "Commonality References (CRs)," are themselves necessarily dynamically mutable, context-dependent, and evolve with the

"displacement" of their encompassing CR on its "Existence-Evolution Axis (EEA)."

1. "Laws" evolve with the evolution of their carrier CRs (transformation on the EEA): This is the core insight of *Relatedness Theory* regarding "laws." Since "laws" are manifestations of "commonality rules" solidified by a specific CR (e.g., CR_Cosmos defining the basic operational mode of our current universe), when this core CR undergoes fundamental "displacement" on its EEA_Cosmos (i.e., the old CR_Cosmos_Old destabilizes and disintegrates, and a new CR_Cosmos_New emerges and stabilizes) driven by its RS_Cosmos's internal "Existence-Evolution Paradox (EEP)," the "laws" defined by this CR must also undergo fundamental change. For example, the universe in its very early stages might have been in a highly symmetrical state, following some (for us) more unified "law" (defined by some primordial CR_Primordial). As the universe cooled and expanded (evolution of EEA_Cosmos), this CR_Primordial might have undergone a series of "symmetry-breaking" "displacements," differentiating into more specific CRs that define the different fundamental interaction forces we currently know (gravity, electromagnetism, strong and weak nuclear forces), thereby causing the "physical laws" we observe to also differentiate from unity. Similarly, in the distant future of the cosmos, if CR_Cosmos_Current again undergoes a fundamental "displacement," the cosmos might enter a new epoch following "physical laws" entirely different from today's.

2. The hierarchical nature of "laws" and the relativity of their effective scope: "Relatedness Systems (RSs)" of different levels and scales may be defined by CRs of different natures; therefore, the "effective laws" they follow may also differ. For example, the gravitational "law" governing galactic-scale motion (possibly defined by some macroscopic CR_Gravity) and the "law" governing strong interactions within atomic nuclei (possibly defined by some microscopic CR_StrongForce) are entirely different in form and scope of application. *Relatedness Theory* posits that one cannot simply absolutize the "effective laws" of a particular level (e.g., the macroscopic classical physics level of our daily experience, or the microscopic level dominated by quantum mechanics) and extend them to all levels and scales without considering the differences in the CRs defining these levels and scales.

3. The possibility of spatiotemporal variation of "laws" (as an inference from CR context-dependence): If certain structural

characteristics of the core CR defining "laws" (e.g., CR_Cosmos)—such as the density or topology of its underlying DPs network, its interaction intensity with the surrounding "Pure Nothingness" potentiality background, or more fundamentally, the statistical distribution of local PV "inherent necessary propensities" upon which its emergence depended—exhibit significant, systematic differences in different spatiotemporal regions or different evolutionary stages of the cosmos, then the specific forms of "fundamental constants" or "laws" defined by these CRs might also undergo spatiotemporal variation. For example, if in the very early universe, the "activation density" of "Pure Being" potentiality or the combination mode of PV "relational propensities" in one region fundamentally differed from another, then the CR_Cosmos_Local emerging from them via CSAM/BSO might also differ, leading to variations in the "local physical laws" followed by these regions (although such differences might be extremely minute or only manifest under extreme conditions). Searching for such possible CR context-dependent spatiotemporal variations of "laws" is a potential avenue for *Relatedness Theory* to intersect with and draw mutual inspiration from cosmological and high-energy physics observations in the future (though this remains highly theoretical and exploratory at present).

4. The human cognitive constructivity of "laws": Finally, the "physical laws" we express in mathematical language and scientific theories are, from the epistemological perspective of *Relatedness Theory*, "effective descriptions" and "computable models" of specific CR operational modes in the universe. These are constructed by our human cognitive system (RS_Cognition)—based on its intrinsic cognitive CRs (e.g., our logical reasoning abilities, mathematical abstraction capacities, and scientific experimental paradigms and theoretical preferences formed in specific historical periods)—through interaction, abstraction, and modeling with the natural world (an external, extremely complex RS_Universe) that we can observe. These mathematical formulas and theoretical statements we call "laws" are an approximation and representation (possibly very successful, with predictive power within a certain precision and range) of the "relational rules" and "behavioral patterns" exhibited by the cosmos under specific CR reference. However, they are not equivalent to that "Relational Reality" itself and its intrinsic operational logic, which may be far more complex, more dynamic, and perhaps even incapable of being fully formalized. The simplicity and elegance of the "laws" we discover

may also partly reflect the inherent cognitive preferences of us as cognitive subjects in constructing these models (e.g., a preference for simplicity, symmetry, and computability).

Conclusion: The "Laws" of the Cosmos—The Musical Score of "Relational Order," Emergent with "Commonality References (CRs)," Dynamically Evolving on the "Existence-Evolution Axis (EEA)," and Context-Dependent

In summary, the "Laws" of the cosmos, in the final elucidation of *Relatedness Theory*, are not, as traditionally conceived, eternal "legislation" or "decrees" engraved on the cornerstone of existence, external to specific existential processes. Instead, they are the dynamic modes of order in which DPs and "Relative Entities (REs)" interact and evolve within the sphere of influence of "Commonality References (CRs)"—those stable structural patterns that emerge self-organizedly from the "Primordial Vector (PVs)" potentiality of "Pure Being" via the "Global Bidirectional Self-Organization (BSO) mechanism" and the "Commonality Self-Activation Mechanism (CSAM)" within "Relational Reality" (constituted by "Dependency Path, DPs" networks), capable of defining the "existence basis," "operational rules," and "commonality standards" of specific "Relatedness Systems (RSs)" or "Relatedness Levels (RLs)"—as stipulated and exhibited by these CRs.

Their ontological status is emergent, relative, context-dependent, and dynamically mutable: "Laws" exist by virtue of specific CRs; their form, content, and validity change as that CR undergoes fundamental "displacement" on its "Existence-Evolution Axis (EEA)" driven by the "Existence-Evolution Paradox (EEP)"; and they may present as different, hierarchical "effective laws" in different "Relatedness Levels (RLs)" and "Relatedness Systems (RSs)."

The origin of the orderliness they exhibit lies in the infinite potentiality of "Pure Being," the "inherent necessary propensities" of PVs, the universal operational logic of BSO, and the creative role of CSAM in the structural origin phase: these factors collectively ensure that the cosmos can self-organize and generate "Relatedness Systems (RSs)" with complex ordered structures and their operational "laws" from initial undifferentiated potentiality and random fluctuations.

Their being understandable and graspable by us (as cognitive subjects, RS_Cognition) may originate from a profound "resonance" or "structural similarity" at a more fundamental level of "relational logic" driven by BSO, between our cognitive RS's internal CRs and the external cosmic

RS's CRs: this provides an intrinsic explanation, based on the fundamental principles of *Relatedness Theory*, for the "understandability" of the cosmos and the effectiveness of mathematics in describing "laws."

Relatedness Theory ultimately transforms "laws" from static, external, absolute "legislators" into a dynamic, internal "musical score of the cosmic symphony," emergent and reshaped within the framework of specific, ever-evolving "Commonality References (CRs)" by "Relational Reality" itself. This cosmic symphony's score ("laws") is not immutable; driven by its intrinsic "Existence-Evolution Paradox (EEP)," with the continuous replacement of the "conductor" (core CR) ("displacement" on EEA), it is constantly being rewritten on the "Existence-Evolution Axes (EEAs)" of all Relatedness Systems in *Relatedness Theory*. We, as part of this cosmic symphony, are both "musicians" ("Relative Entities, REs") playing according to the "score" defined by specific CRs ("laws"), and also, through our interactions with other RSs and our collective influence on the ARO we inhabit (feedback of "Global Bidirectional Self-Organization, BSO"), to some extent, indirectly participating in the co-creation of this grand "cosmic score" (i.e., influencing the evolution of higher-order CRs). Understanding this dynamic, emergent, relative, and "costly" (h(T) for maintaining CR stability) nature of "laws" is the core insight *Relatedness Theory* offers for our comprehension of the origin and evolution of cosmic order and its profound mathematical understandability. It challenges us to seek the deeper "relational dynamics" and "generative logic" hidden behind phenomenal "laws"—that perhaps is the mystery *Relatedness Theory* attempts to unveil concerning how "existence" eternally generates through relation, reference, and self-organization within the infinite potentiality of "Pure Being."

Third Question: On the "Essence" (□) of the Cosmos—The Deep Nature of Spacetime, Consciousness, Information, and Mathematics, and their Unification and Entanglement in "Relational Reality"

The cosmos we experience and cognize presents certain key elements that seem to constitute its "fundamental reality" or operational framework—for example, the "spacetime" framework in which all things exist, the phenomenon of "consciousness" by which we perceive and think, the "information" that is transmitted and shapes phenomena in various processes, and the "mathematical structures" that seem to govern natural order and are grasped by our reason. So, what is the deep "nature" (Essence) of each of these elements? Are they respectively independent foundational "domains" possessing a priori reality, or are they interdependent and mutually constitutive in some more profound way, possibly even ultimately unified at some more fundamental level of "reality"? How do they collectively weave this complex and orderly tableau we call "reality"?

Answer—

Relatedness Theory offers a unique set of answers to these fundamental questions concerning the "Essence" of the cosmos, based on its "primacy of relations" ontology and its core perspective of all things emerging via "Commonality References (CRs)" (as stable relational structural patterns embodying specific "commonality rules" and inherently possessing their "identifiability thresholds"). It fundamentally deconstructs the traditional conception of these "fundamental elements" as independent "entities" or a priori "essences." Instead, it unifies them as different facets—possessing different characteristics yet being interdependent, entangled, and specific structured patterns, operational modes, or descriptive languages—manifested by the same foundational "Relational Reality." This Relational Reality is the dynamic, hierarchical "Dependency Path (DPs)" network, activated and woven from the "inherent necessary propensities" of "Primordial Vectors (PVs)" (which emerge from the infinite potentiality of "Pure Being") under the drive of the "Global Bidirectional Self-Organization (BSO) mechanism" (this fundamental organizing principle originating from the interactive logic of PVs), all under the referential and "projection" framework (including the

screening by their "identifiability thresholds") of different, self-organized emergent "Commonality References (CRs)."

I. Spacetime: As the Dynamic Emergence of the "Ordinal Structure" of "Relational Reality" Under the Reference of a Specific "Spatio-temporal Commonality Reference (CR_Spatio-temporal)"

1.1 . "Spacetime" is Neither an A Priori Absolute "Container" Nor the Sole Ontological Cornerstone:

Relatedness Theory thoroughly negates the existence of a pre-given, absolute "spacetime" itself, serving as a "background stage" for the existence and motion of all things in the cosmos. The characteristics of spacetime in our experience are not the most fundamental, indivisible ontological elements of the cosmos.

1.2 . The Essence of "Spacetime" Lies in the "Order of Relations" Exhibited by the "Dependency Path (DPs)" Network:

In the view of *Relatedness Theory*, the profound nature of "spacetime" is a macroscopic, orderly structural attribute or relational pattern exhibited by the most fundamental "Dependency Path (DPs)" network of the cosmos (these DPs originate from the "inherent necessary propensities" of "Primordial Vectors, PVs," and are activated and woven from "Pure Being" potentiality through BSO and the "Commonality Self-Activation Mechanism, CSAM"). This attribute of "relational order" can only be stably manifested, measured, and experienced under the reference, definition, and organization of a specific "Spatio-temporal Commonality Reference (CR_Spatio-temporal)" (e.g., a cosmological core reference CR_Cosmos that defines the basic geometric characteristics and causal (relative) transmission rules of our current observable universe, which itself also inherently possesses a specific "identifiability threshold") that possibly operates at a cosmic scale.

1.2.1. Emergence of "Spatiality": Originates from those relational characteristics inherently possessed by the DPs network, which are capable of defining "extensibility," "separability," "adjacency," and "connective topological structure" between "Relative Entities (REs)." A specific spatial CR , through its contained "commonality rules" and "projection rules," endows these relational characteristics of the underlying DPs network with the dimensions, metric structure, and overall geometric form that we experience. Therefore, space is not some kind of "empty void" background but is filled with potential "path

possibilities," "positional relations," and "structural order" defined by DPs.

1.2.2. Emergence of "Temporality": Originates from the intrinsic, unavoidable continuous changeability, the sequentiality of event occurrence, and the rhythmic differences exhibited by different dynamic processes within "Relational Reality" (including the DPs network itself, the REs patterns manifested upon it, and even the CRs defining them), driven by its "Existence-Evolution Paradox (EEP)." A specific temporal CR , by providing a referential standard capable of "ordering" these changes and events (e.g., by selecting a relatively stable periodic process as a "clock" SRO, or more fundamentally, by tracking the sequence of events where a core CR undergoes a fundamental transformation or "displacement" of its "existence basis"—i.e., its rule system—on its "Existence-Evolution Axis, EEA"), organizes these intrinsic, diffuse changes into the "flow of time" that we perceive and measure, which seems to flow unidirectionally. In the most profound sense of *Relatedness Theory*, "time" is closely related to an RS's "Existence-Evolution Axis (EEA)"; each "transition node" on the EEA (a fundamental reconstruction event of the CR rule system) marks a qualitative transformation of the RS's "existence paradigm," constituting the most fundamental "temporal beat" or "historical periodization" of its evolutionary course.

1.3 . The Unity, Dynamism, and Relativity of "Spacetime":

"Time" and "space" are not two mutually independent dimensions but different (yet profoundly entangled and mutually defining) ordinal aspects exhibited by the same foundational DPs network under the reference of a specific, possibly unified CR_Spatio-temporal . Since the CR_Spatio-temporal defining "spacetime" is itself a CR dynamically evolving along its EEA driven by EEP, "spacetime" itself in *Relatedness Theory* is also dynamic, evolvable, and even fundamentally reconstructible when its dependent CR undergoes an EEA "transition node." Different hierarchical levels and types of RSs, if defined by different CRs, may also exhibit very different "effective spacetime" characteristics.

1.4 . "Spacetime" as an Emergent Phenomenon, Not the Ultimate Substrate of the Cosmos:

"Spacetime" is a relatively stable "emergent" observation and construction by us (as cognitive subjects, RS_Cognition) at the macroscopic experiential level, of the "relational ordinal structure"

exhibited by this immense RS, the cosmos, under the reference of a specific CR_Cosmos . At the more fundamental levels conceived by *Relatedness Theory* (e.g., the "Pure Being" potentiality background, or extreme conditions where CRs might fail), the spacetime manifold familiar to us may not exist; rather, it might be some form of discrete DPs network or a more exotic "pre-spacetime" configuration.

II. Consciousness: A Subjective Experience with a First-Person Perspective, Emerging from the "Relational Dynamics" within a Specific "Cognitive Relatedness System (RS_Cognition)" Under the Reference of its Highly Integrated "Core Self-Reference (CRO_Self)"

1. Negation of consciousness as an independent "entity" or a mere "epiphenomenon":

Relatedness Theory neither regards consciousness as a mysterious entity independent of "Relational Reality" nor agrees with simply viewing it as a passive byproduct of complex material systems.

2. Consciousness as an emergence from "relational dynamics" within a specific RS_Cognition:

Relatedness Theory posits that consciousness is an extremely complex, multi-layered "Cognitive Relatedness System (RS_Cognition)," internally containing vast "Dependency Path (DPs)" networks and various "Relative Entities (REs)" (such as perceptions, memories, concepts, emotions) manifested upon them. When the information processing and relational dynamics of the DPs network within this RS_Cognition, under the continuous operation of the "Global Bidirectional Self-Organization (BSO) mechanism," reach a certain high degree of integration, high self-referentiality, and are capable of generating stable and coherent "internal models of itself" under a specific core referential framework, consciousness, and the corresponding subjective experience with a first-person perspective, may then emerge therefrom.

3. "Core Self-Reference (CRO_Self)" as key to the generation, unity, and subjectivity of conscious experience:

The generation of conscious experience, especially its "sense of self" and continuity, critically depends on a highly developed "Core Self-Reference (CRO_Self)" that has emerged through long-term evolution and self-organization via the BSO mechanism within RS_Cognition, serving as its "existence basis" and organizational core. This CRO_Self (and its inherent "identifiability threshold"), as the highest-order

organizational core of RS_Cognition, provides a unified referential framework for subjectivity; it integrates information flows (DPs) from different "Relatedness Levels (RLs)" via the BSO mechanism and "attributes" them to this "I" as the center of experience.

4. Subjective experience (qualia) as specific informational states or "phenomenal patterns" "manifested" and "interpreted" under the reference of CRO_Self from specific DPs network activation patterns:

The rich content and unique "texture" (qualia) of subjective experience are, in the view of *Relatedness Theory*, more likely specific, highly complex "Dependency Path (DPs)" network activation patterns within RS_Cognition (these patterns carrying information and structure about specific aspects of the internal and external world, and their "manifestation intensity" must reach CRO_Self's "identifiability threshold"). These are "manifested," "projected," or "interpreted" under the unique referential framework of its core CRO_Self as "informational states" or "phenomenal patterns" possessing specific content and meaning.

5. Cautious re-examination of possible connections and distinctions with panpsychism:

Relatedness Theory is not directly equivalent to traditional panpsychism. However, since PVs carry "inherent necessary propensities," DPs transmit influence, and BSO operates universally, it can be said that the cosmos, at a fundamental level, possesses a certain "pre-relational," "pre-informational," or "pre-organizational" potentiality. Consciousness, then, is an advanced, specialized "relational dynamic operational mode" and its subjective experience, emerging from the high-level organization and integration of these potentialities via BSO within the framework of a specific complex RS_Cognition and its unique CRO_Self .

6. The evolution of consciousness: The growth, development, and transformation of individual consciousness may correspond to adjustments in the rule system (CR), reorganization of DPs networks, or "displacement" of the core referential framework within its RS_Cognition (especially its CRO_Self or key cognitive SROs) on its individual "Existence-Evolution Axis (EEA_Self)," driven by "Existence-Evolution Paradox (EEP_Cognition)."

III. Information: Patterns of "Relatedness and Difference" Transmitted in "Dependency Paths (DPs)," Endowed with Context

and Meaning by "Commonality References (CRs)" (and their "Identifiability Thresholds")

1. Negation of information as an objective "entity" independent of carrier and interpretation:

Relatedness Theory does not consider information to be an objective entity that can exist independently of its physical carrier and interpretive framework.

2. The ontological root of information lies in the "relatedness" established by DPs and the "distinguishable differences" generated:

"Relatedness" *is* information; DPs connections themselves contain relational information; DPs network topology encodes organizational structural information. "Difference" *is* information; state differences or changes in REs constitute transmittable and processable difference information.

3. The transmission of information depends on the physical processes of DPs networks; its meaning depends on the interpretive framework of CRs (and their "identifiability thresholds"):

Information must be carried and propagated by specific physical processes (DPs); REs are its physical carriers. However, these raw "relations" and "differences" may merely be "potential information" before being "interpreted" and "endowed with meaning" by a CR possessing specific "commonality rules," "projection rules," and an "identifiability threshold." It is the CR that provides the contextual framework, measurement standards, and "decoding rules" for understanding and interpreting these "relations" and "differences," enabling them to be "read" as "information" with specific "meaning."

4. Philosophical principled correspondence of information's core status in *Relatedness Theory* dynamics:

At the level of pure philosophical principles, *Relatedness Theory* profoundly recognizes that information is not merely the "content patterns" it carries. More importantly, the "degree of organization" of these patterns, their "distinguishability" (which is closely related to a CR's "identifiability threshold"), and the very "state" of their being consistently and stably maintained and transmitted within a specific RS's overall relational network and CR referential framework, possess profound ontological significance. This state itself may act as a fundamental dynamic factor (e.g., by influencing BSO's operational

efficiency, CR's stability T_CR, or an RS's overall "evolutionary rate v") participating in the operation and evolution of "Relational Reality." Chaos, conflict, or uncertainty of information within an RS (relative to its CR and "identifiability threshold") may be an important manifestation of its "Existence-Evolution Paradox (EEP)" intensification and a factor driving its CR to undergo "displacement."

IV. Mathematics: As a Formalized Language and Logical Tool Used by a Cognitive Subject (RS_Cognition) within its Cognitive Referential Framework (CR_Mathematics) to Describe Abstractable "Potential Commonality Rules," "Structural Patterns," and "Dynamic Logic" in "Relational Reality"

1. Negation of mathematical objects as Platonic objective realities independent of mind and the physical world:

Relatedness Theory does not consider mathematical objects to be "entities" existing a priori, independent of cognitive subjects and the cosmic "Relational Reality."

2. The essence of mathematics: A cognitively constructed tool for describing "relations":

The essence of mathematics is a highly formalized symbolic language system and logical reasoning tool, gradually developed, created, and refined by humans (or other possible cognitive RS_Cognition) within their internal cognitive referential framework (CR_Mathematics). This occurs in their long-term interaction with the cosmic RS_Universe, in order to capture, represent, and effectively operate upon and deduce the most universal "relational patterns," "structural characteristics," "transformation rules" within cosmic "Relational Reality" that are independent of specific material carriers, as well as the intrinsic logic of "potential commonality rules" latent in "Pure Being" potentiality. The power and universality of mathematics are rooted in the inherent "relatedness" and "structuredness" of the cosmos in *Relatedness Theory*.

3. *Relatedness Theory's* explanation for the effectiveness of mathematics (non-teleological, based on "relational logic resonance"):

Mathematics is effective in describing the cosmos (especially physical laws) not because the cosmos itself is "mathematical" or follows some a priori "mathematical blueprint." Its effectiveness may originate from:

The universality and abstractability of "potential commonality rules" inherent in the "inherent necessary propensities" of "Primordial Vectors (PVs)" and the universal interactive logic of the "Global Bidirectional Self-Organization (BSO) mechanism."

A profound "resonance" or structural similarity at a more fundamental level of "relational logic," driven by BSO, between the cognitive references (CR_Mathematics) within the cognitive subject RS_Cognition and the Central Commonality References (CR_Cosmos) of the cosmic RS_Universe. This is a relative, limited match achieved through long-term evolution and mutual construction between cognition and reality.

BSO-driven self-organizing processes themselves may exhibit certain universal, mathematically describable patterns (such as symmetry, hierarchy, specific network topologies, or dynamic stability criteria).

4. The dialectical unity of mathematical "discovery" and "creation" (based on *Relatedness Theory's* view of mutual construction):

Mathematics has elements of being "discovered" (it touches upon the deep structure and logic of "Relational Reality" in some way) and elements of being "created" (it is a product of human cognitive CR construction, its specific form, choice of axioms, and developmental direction being influenced by history, culture, and the cognitive subject). It is a product of the interactive construction between cognitive RS and cosmic RS.

5. The limitations of mathematics (originating from *Relatedness Theory's* view of cognitive boundaries.

As a cognitive tool, the effectiveness and scope of application of mathematics are limited, constrained by its dependent cognitive CR_Mathematics and the framework of the object of study (a certain RS and its CR). It necessarily performs a high degree of abstraction and simplification of the "Relational Reality" it describes, and may possess intrinsic limitations of logical and formal systems themselves.

V. The Mutual Entanglement and Unified Tableau of Spacetime, Consciousness, Information, and Mathematics: All as Different Manifested Facets of "Relational Reality" Under Different CR (and their "Identifiability Threshold") References and BSO Operations

In the overall vision of *Relatedness Theory*, these seemingly

heterogeneous "fundamental elements"—spacetime, consciousness, information, mathematics—are no longer viewed as mutually separate independent "entities" or "domains." Instead, they are profoundly understood as different facets of the same foundational "Relational Reality" (i.e., the dynamic, hierarchical "Dependency Path, DPs" network activated and woven from the PV potentiality of "Pure Being" via BSO and CSAM mechanisms, and the CRs and REs self-organizedly emerging upon it). These facets possess different characteristics but are deeply interdependent, entangled, and mutually constitutive, manifested under different CR (and their "identifiability threshold") referential frameworks, at different "Relatedness Levels (RLs)," and in different operational modes and dynamic stages of "Global Bidirectional Self-Organization (BSO)."

They commonly originate from the PV potentiality of "Pure Being" and the universal operational logic of BSO, and they continuously interact and mutually shape each other via DPs networks and BSO mechanisms. For example, spatiotemporal order provides the relational background for information transmission and conscious operation; information flow is central to BSO operation, new CR emergence, and the evolution of DPs/REs patterns; consciousness performs high-level integration, meaning endowment, and referential construction of information; and mathematics provides a universal formal language for describing all these complex relations, structures, and dynamics.

One of the long-term theoretical ambitions of *Relatedness Theory* is to hope to reveal a unified philosophical principled framework. Within this framework, these "Essences of the Cosmos" can all be understood as different sections and movements of an intrinsically unified "cosmic symphony," originating from the same root of "Pure Being" potentiality, woven by the self-organizing evolution of "relation," and exhibiting different facets under different references and at different levels.

Conclusion: All Things are Emergent Patterns of Relational Reality; their "Nature" Lies in their Encompassing Dynamic Relational Network, Referential Framework (CR and its "Identifiability Threshold"), and Evolutionary History

Relatedness Theory's ultimate answer to the question of the "deep nature" of the cosmos we experience and its key constituent elements—spacetime, consciousness, information, mathematics—lies centrally in the thorough deconstruction of their status as isolated "entities" or a priori "essences." It re-unifies them as dynamic patterns, organizational

structures, and operational modes that possess different characteristics yet are profoundly interdependent, entangled, and co-evolving. They emerge from the same foundational "Relational Reality" under different CR (and their "identifiability threshold") referential frameworks, at different "Relatedness Levels (RLs)," and under the universal operation of the "Global Bidirectional Self-Organization (BSO) mechanism" and the eternal drive of the "Existence-Evolution Paradox (EEP)."

None of them possess their own independent, a priori, fixed, immutable "essence." Their so-called "nature" is entirely manifested in the broader, dynamically evolving "relational network" in which they are embedded; in the rules, context, and "identifiability threshold" of the (themselves evolving) "Commonality References (CRs)" that define and shape them; and in the intrinsic dynamics (EEP, BSO) that drive them to continuously generate, change, and reconstruct along their respective "Existence-Evolution Axes (EEAs)."

The ultimate "Essence" of reality, in the view of *Relatedness Theory*, lies not in any specific "thing," "field," "structure," or "idea," but in relation itself—eternally flowing, self-organizing, generating all phenomena in contradiction—and in the infinite potentiality of "Pure Being" as the ultimate source and eternal background of all these possibilities. Understanding this, we may perhaps transcend the endless debates of traditional metaphysics about "what the cosmos is made of," and instead, from a more unified, more dynamic, more profound perspective that is also more aligned with our complexly related era, re-grasp the mysteries of the cosmos and our place within it.

Part Four: On the "Knowing" ( ) of the Cosmos—The Panoramic Evolution of Cognitive Boundaries Driven by the "Evolutionary Dynamics" of a "Cognitive Relatedness System"

Where lie the capacity, scope, and ultimate boundaries for human beings and any potential intelligent cognitive subjects to "know" the cosmos? The "truth" tableau about the cosmos that we form through rational speculation, mathematical construction, experimental observation, and computational simulation—in what sense and to what extent can it correspond to or "approximate" the "Reality-in-itself" (Kant's *Ding an sich*) of the cosmos? What active "constructive" role do consciousness, language, logical frameworks, and mathematical tools in shaping our paradigms for understanding the cosmos, and what inherent "limitations" do they bring? Do certain aspects or levels of the cosmos constitute an eternal "unknowable domain" due to their inherent complexity, non-computability, transcendence, or fundamental incompatibility with cognitive subjects? Or, conversely, is "knowability" and "understandability" (especially mathematical understandability) itself a profound, non-trivial property of the cosmos, whose very existence requires explanation?

I. Reframing the Question: From a Static "Correspondence Theory of Truth" to a Dynamic "Evolutionary Dynamics"

(This section aims to address: How should we correctly pose questions about "cognition"?)

1.1 The Predicament of Classical Epistemology: Limitations of Subject-Object Dichotomy and a Static View of Truth

These fundamental inquiries, which have permeated the history of human philosophy, often themselves presuppose a profound yet potentially problematic framework: an independent, observing "cognitive subject" (subject), and an "external world" (object) existing objectively and independently of the subject, "awaiting" discovery. Within this "subject-object dichotomy" tableau, "cognition" is understood as how the subject transcends the chasm to acquire accurate representations of the

object; and "truth" is defined by the degree of "correspondence" between this representation and the "reality-in-itself" of the object.

This classical framework, though fruitful, has also led to numerous intractable predicaments: from the fundamental skepticism of "How can I be certain that the world I perceive is real?", to the logical problem of "How can we induce universal laws from finite experience?", and further to the profound debate on "Whether our language and mathematical tools are describing reality or constructing reality." The root of these problems, perhaps, lies in this static, dichotomous way of questioning itself.

1.2 *Relatedness Theory* does not attempt to directly answer these questions within the aforementioned classical framework, but rather aims to dissolve them by reconstructing the ontological basis of the questions. *Relatedness Theory* proposes that we must undertake a fundamental shift in perspective:

"Cognition" is not a static state of "representation-correspondence," but a dynamic, unceasing evolutionary process. The subject performing "cognition" is not an isolated, a priori mind, but an extremely complex, multi-layered, open "Cognitive Relatedness System (RS_Cognition)." And such a system, like all other "Relatedness Systems (RSs)" in the cosmos, its most fundamental essence lies not in "existence," but in the eternal "evolution" driven by its intrinsic "evolutionary dynamics."

Therefore, a theory about "knowing" must first and foremost be a theory about "how cognitive systems evolve." All questions concerning truth, boundaries, and knowability must be re-posed and re-examined within this dynamic, evolutionary framework.

II. The Essence of Cognition: As a "Cognitive Relatedness System (RS_Cognition)" Constructing its "Internal Reality" in BSO

(This section aims to address: "What do we cognize?" and "What role does the cognitive subject play?")

2.1 Cognitive CRs: The Hierarchical Referential Framework for Constructing "Internal Reality"

Any cognitive subject, in *Relatedness Theory*, is understood as a unique

"Cognitive Relatedness System (RS_Cognition)." The structure and function of this system are defined by an extremely complex, hierarchical set of internal **cognitive "Commonality References (CRs_Cognitive)." These cognitive CRs are information processing patterns, structures, and rules that have emerged and stabilized within this system through the long-term evolution (biological and cultural) via the "Global Bidirectional Self-Organization (BSO) mechanism," from the interaction of innumerable "Primordial Vectors (PVs)."**

They include at least:
Low-level sensory SROs: Such as specific neural circuits in the visual cortex responsible for processing edges, colors, and motion; they are the first organizers of sensory input.
Mid-level conceptual CRs: Such as concepts like "tree," "water," "force." They are not isolated labels but stable networks constituted by core REs and innumerable **"Dependency Paths (DPs)"** connecting them to other conceptual REs.
High-level logical/mathematical CRs: Such as the intrinsic "grammatical" rules for performing deduction, induction, analogy, etc., and the mathematical frameworks for grasping abstract relations of quantity, structure, change, etc.
Governing cultural/worldview AROs/CROs: Such as the grammatical structure of a specific language, socio-cultural paradigms, research paradigms of scientific communities, and ultimately, the **"Central Self-Reference (CRO_Self)"** that integrates all of this and defines the first-person experiential center of "I."
This entire hierarchical set of cognitive CRs constitutes the fundamental referential framework for the cognitive subject to construct its "internal reality."

2.2 The "Mutual Constitution" of Subject and Object: Cognitive Subject and Knowable World Co-generated in BSO

The cognitive process is by no means a passive reflection of the external world, but a profound manifestation of BSO at the cognitive level, a process of thorough **"Mutual Constitution"** between the cognitive subject and its knowable objects:

From subject to object: RS_Cognition, through its intrinsic cognitive CRs, actively and selectively "shapes" and "defines" the

"objects" it can perceive, understand, and articulate. Information flows (DPs) from the environment can only be "projected" as meaningful **"Relative Entities (REs)"** when they are compatible with the "commonality rules" of a certain cognitive CR and reach its "Identifiability Threshold (IT)." The "table" we perceive is the result of our CR_Concept acting upon a specific DPs flow of photons.

From object to subject: Simultaneously, continuous information input (DPs) from the environment also constantly challenges, revises, and reshapes the cognitive subject's internal cognitive CRs. An "anomalous" experimental result might eventually compel the core CR (scientific paradigm) of an entire scientific community to undergo "displacement."

Therefore, the "subject" performing cognition (and its cognitive framework) and the "object" known by us (in the specific form and meaning under which it is known by us) are co-generated, interdependent, and co-evolving in the unceasing relational interaction of cognition.

2.3 Response to "Reality-in-itself": What We "Know" is the Projection of "Relational Reality" Compatible with RS_Cognition's CRs

This perspective of *Relatedness Theory* offers a fundamental answer to Kant's problem of the "thing-in-itself (*Ding an sich*)." Within the framework of *Relatedness Theory*, a "thing" existing "in itself," completely independent of any CR, is logically inconceivable. Because any "thing" that can be discussed or cognized is necessarily, in its essence, a Relative Entity (RE). And the definition of an RE is "a stable projection of a Dependency Path (DPs) network under specific CR reference." Its very existence presupposes the existence of a CR.

Therefore, we can never "transcend" our cognitive CRs to "directly access" some "reality-in-itself." However, this does not mean that what we know is an illusion. What we can "know" is that objective **"Relational Reality," organized by CRs (e.g., CR_Physics defining physical laws), which, when interacting with our RS_Cognition's CRs, can be "projected" and "constructed" by us as that relative, yet authentically effective, facet.** Our knowledge is knowledge about "relations," not about "things-in-themselves."

III. The Tableau of "Truth": As Transiently Stable "Internal Models" on the Cognitive Existence-Evolution Axis (EEA_Cognitive)

(This section aims to address: "What is 'truth'?" and "Why do scientific revolutions occur?")

Relatedness Theory's dynamic evolutionary perspective fundamentally reconstructs the concept of "truth." It is no longer seen as a static correspondence to "reality-in-itself," but as an "internal model" dynamically constructed, evolving, and ultimately potentially sublated in interaction with "Relational Reality," under specific cognitive CR reference.

3.1 "Cognitive Existence-Evolution Paradox (EEP_Cognitive)": The Fundamental Engine Driving the Evolution of Knowledge Systems

Any knowledge system or scientific paradigm, as an RS_Cognition defined by its core cognitive CR_Cognitive, is necessarily driven by its intrinsic "Cognitive Existence-Evolution Paradox (EEP_Cognitive)." This is precisely the fundamental reason why knowledge systems cannot remain eternally unchanged but must inevitably evolve.

Cognitive transformative propensity (v_Cognitive): Its sources include:

Incompleteness of Foundation (IoF): Any theoretical paradigm (CR_Cognitive) is necessarily incomplete; there will always be "anomalous" phenomena it cannot explain. The continuous accumulation of this "anomalous" data (as input DPs) constitutes a persistent "structural tension" for the stability of the existing paradigm.

Open System Adaptation (OSA): New existential and developmental challenges faced by human society (a higher-order RS) (such as environmental changes, technological demands), via the BSO mechanism, translate into "dynamic screening pressure" on RS_Cognition to generate new knowledge and technologies (new effective REs and DPs networks).

Persistence (T_CR_Cognitive) and Cost (h(T)) of Cognitive Paradigms:

A mature scientific paradigm, through educational systems, academic institutions, technological applications, etc. (innumerable DPs networks), maintains its "period of definitional power" (T_CR_Cognitive) as the dominant explanatory framework, exhibiting strong "dynamic inertia."

However, to maintain this paradigm in the face of increasing "anomalies," the academic community needs to expend enormous "maintenance cost (h(T))", for example, by adding increasingly complex "patches" to old theories. This increases the system's complexity and internal contradictions, gradually pushing it towards its "existence-bearing capacity (C_max)."

3.2 "Truth" as the Stable Paradigm of an EEA_Cognitive "Plateau Phase" (Defined by CR_Cognitive)

What we usually call "scientific truth" or a "successful theory," in *Relatedness Theory*, can be understood as that relatively stable and effective "internal model" constructed and maintained by the then-dominant core CR_Cognitive during a relatively long "plateau phase" on RS_Cognition's own "Existence-Evolution Axis (EEA_Cognitive)."

In this "plateau phase," that cognitive CR (e.g., the Newtonian mechanics paradigm) exhibits powerful explanatory and predictive capabilities, effectively organizing the vast majority of experiential data (REs), and its internal EEP contradictions are in a controllable, dynamic equilibrium. In this context, it *is* "truth."

3.3 "Paradigm Shift": As the Inevitable Result of EEP Intensification Leading to the "Displacement" of Cognitive CR

Scientific revolutions or fundamental intellectual breakthroughs are, in the view of *Relatedness Theory*, precisely the **"transition nodes"** occurring on RS_Cognition's EEA_Cognitive.

When the EEP_Cognitive contradictions (e.g., accumulation of "anomalies") intensify to a degree that the existing CR_Cognitive's C_max can no longer accommodate, the old paradigm destabilizes, its "definitional power" collapses, and the cognitive system enters a "chaotic exploratory period" fraught with uncertainty. During this period, through BSO's self-organizing exploration and the probabilistic "ignition" of (possibly CSAM-like) "conceptual innovation," a new cognitive reference (CR'_Cognitive) (e.g., relativity or quantum mechanics) that can better explain the original "anomalies," integrate more information, and more effectively manage the current EEP contradictions will emerge.

This fundamental "displacement" of the cognitive CR is a "paradigm shift." It is not a simple theoretical correction but a profound reconstruction of the cognitive subject's "existence basis," necessarily bringing about an entirely new understanding of the constitution ("REs") and "laws" (DPs connection rules) of the "world."

IV. Boundaries of Cognitive Capacity: Dynamic Expansion Driven by EEP and the Emergence of "Composite Systems"

(This section aims to address: "Where are the boundaries of cognition?" and "How do we expand cognition?")

The boundaries of cognition (defined by a cognitive CR's IT) are not static. Their expansion does not originate from some subjective "desire to know," but is an inevitable consequence of RS_Cognition undergoing structural reconstruction driven by its EEP in pursuit of new dynamic stability.

4.1 Paradigm Analysis: The "Human-Machine" Composite System—As a Dynamic Product of EEP Crisis

Take "humans cognizing the universe with the aid of a radio telescope" as an example. Before telescopes, RS_Human faced an EEP_Cognitive crisis: its intrinsic CR_Vision could not explain phenomena from the deep universe beyond its sensory reach; this constituted a huge "anomaly" and cognitive "tension" (v). To alleviate this tension, driven by BSO, the system (human society as a higher-order RS), through complex social and technological DPs networks, probabilistically gave rise to the solution of the "radio telescope" as an RS_Tool.

4.2 Emergence of a Composite CR and "Translation-Reprojection" of REs: The Mechanism for Incorporating the "Invisible" into the "Knowable"

When RS_Human and RS_Tool combine to form an RS_Human+Tool composite system, a composite CR_Composite emerges accordingly. The core of this process lies in the "translation-reprojection" of REs:

1.First projection: RS_Tool, under the reference of its CR_Tool, "projects" radio wave DPs, invisible to humans, into an intermediate RE form, such as an image on a screen, RE_Image.

2.Second projection: This RE_Image, as new visible light DPs compatible with human CR_Vision, is input into RS_Human and is "re-projected" by it into a finally understandable internal cognitive RE—"I 'see' the nebula."

RE_Image here plays a crucial role as an **information "translation intermediary,"** successfully "translating" information incompatible with the subject's cognitive CR into a compatible format.

4.3 The Evolution of Cognitive Boundaries: As an Inevitable Consequence of RS Structural Reconstruction in Pursuit of New Dynamic Stability

This paradigm profoundly reveals that the expansion of cognitive boundaries is not the "goal" of human exploration. Rather, it is a magnificent, yet **"by-product"-like dynamic consequence** of RS_Human undergoing structural reconstruction, irresistibly driven by its intrinsic EEP, in search of new transient dynamic stability (i.e., forming a new CR capable of more effectively managing its EEP). The history of human scientific exploration is precisely a non-teleological evolutionary epic of RS_Human_Cognition on its own EEA_Cognitive, constantly being forced by EEP crises to undergo structural reconstructions (including creating and integrating new "tool RSs"), and thereby objectively, continuously expanding its cognitive boundaries.

V. Ultimate Boundaries and the Root of "Understandability": The Resonance of Finite Cognition with the Cosmic "Relational Logic"

(This section aims to address: "Is there an eternal unknowable domain?" and "Why is the universe understandable?")

5.1 The Ultimate Boundaries of Cognition: Originating from the Finitude of Cognitive CRs, the Infinite Complexity of Reality, and the Eternal Veiling of "Pure Nothingness"

Although cognitive boundaries can dynamically expand, *Relatedness Theory* also reveals that they possess insurmountable ultimate limits:

Finitude of cognitive CRs: The cognitive CRs of any RS_Cognition are products of its specific evolutionary history, necessarily finite, relative, and carrying their inherent "referential framework dependence."

Infinite complexity of reality vs. C_max_Cognition: The potential complexity of cosmic "Relational Reality" may be infinite, while the "existence-bearing capacity (C_max)" of any finite cognitive subject limits its ability to process infinite information.

Eternal veiling by "Pure Nothingness": Everything we can cognize is forever only a finite "manifestation" of the infinite potentiality of "Pure Being." That vast domain which remains "unmanifested" relative to all our cognitive CRs—the **"Pure Nothingness (PN)"**—constitutes the most profound, eternal unknown at the ontological level.

5.2 The Enigma of Cosmic "Understandability" Solved: Structural Resonance Between Cognitive CRs and Cosmic CRs Under the Universal Logic of BSO

Why is the universe, to a large extent, understandable? This is not a "miracle" requiring recourse to mysterious harmony. *Relatedness Theory* posits its root lies in: the cosmos (RS_Universe) and our cognitive system (RS_Cognition), though different systems, are both shaped and driven by the same most fundamental, most universal organizing principle—"Global Bidirectional Self-Organization (BSO)," originating from PV interactive logic.

Therefore, the cognitive CRs emerging within our cognitive system (especially formal tools like mathematics and logic describing "relations"), their intrinsic "relational grammar" and "structural generation logic," possess a profound, non-accidental structural resonance with the underlying "relational logic" followed by the cosmos in constructing its own "laws" (as manifestations of its CR_Cosmos). Our minds, as products of cosmic evolution, have, to some extent, "learned" the universe's own "language."

5.3 Conclusion: Cognition—A "Co-dance" of Boundary Evolution, Driven by Contradiction, Unceasing within the Web of Relations

In summary, *Relatedness Theory* ultimately depicts "cognition" as an unceasing "co-dance" in which the cognitive subject and "Relational Reality" co-evolve, mutually shape, and dynamically construct within this infinitely complex cosmic web of relations. It humbly acknowledges the profound limitations of our cognition, thoroughly shattering the illusion of a singular, absolute "truth"; simultaneously, it proactively affirms our powerful capacity, driven by intrinsic "Existence-Evolution Paradox," to continuously construct and reconstruct cognitive CRs (evolution on the cognitive EEA), thereby persistently expanding the boundaries of our understanding, creating new meanings, and taking more effective actions.

Fifth Question: On the "Meta" ( ) of the Cosmos—The "Why Thus" of Ultimate Explanation and the Cosmic Meta-narrative

Encompassing all the preceding inquiries, what is the ultimate "Meta-narrative," "First Principle," or "Selection Principle" of the cosmos? In the vast "possibility space" of all "logically possible" universes (universes with different substrates, laws, combinations of essential elements, and even different mathematical and logical rules), why was it "our experienced" universe—one possessing specific initial conditions, physical constants, symmetry structures, mathematical characteristics, and ultimately capable of evolving observers (such as humans) with "self-awareness" and "cognitive abilities"—that became "Actualized" or "selected"? Does this "actualization" or "selection" stem from a pure, unexplainable random "Brute Fact"; is it a profound manifestation of some cosmological-scale "Anthropic Principle" (Weak, Strong, Participatory, or Final); a logical necessity of some deeper "Meta-law" (e.g., pursuing maximization of complexity, information-carrying capacity, life-friendliness, some cosmic self-replication or evolutionary mechanism, or a profound cosmic "self-consistency" and "existential optimization" requirement); or does it point towards an ineffable "Genesis Root" or "Ultimate Reason" transcending our current capacities for causal, spatiotemporal, logical, and even linguistic description? Does this "Meta-question" itself exceed the effective investigable scope of human reason, or is it summoning the birth of a new "Meta-wisdom" capable of unifying existence and cognition, fact and meaning?

Answer—

The "Meta" ( ) of the Cosmos—No Presupposed "Meta-narrative," Only the Probabilistic Self-Consistent Emergence and Eternal Evolution of "Pure Being" Potentiality Based on its Intrinsic "Relational Logic," Driven by the "Existence-Evolution Paradox"

The ultimate inquiry that encompasses all questions about the cosmos's "Being," "Laws," "Essence," and "Knowing" necessarily leads to a more fundamental "Meta" question: What is the ultimate "why thus" explanation for the existence of this cosmos we experience? Does it follow some "Meta-narrative," "First Principle," or universal "Selection Principle" that transcends itself? In the vast "possibility space" of all "logically possible" universes (which might possess entirely different

ontological substrates, operational laws, combinations of constituent elements, and even different mathematical and logical rules), why was it "our experienced" universe—one possessing specific initial conditions, physical constants, symmetry structures, mathematical characteristics, and ultimately capable of evolving observers (such as humans) with "self-awareness" and "cognitive abilities"—that became "Actualized" or seemingly "selected" by some mechanism?

Behind this "actualization" or "selection," is it some pure, random "Brute Fact" that cannot be further explained? Or, as some cosmological interpretations suggest, is it a profound manifestation of some cosmological-scale "Anthropic Principle"—whether Weak, Strong, Participatory, or Final? Or, does it originate from the logical necessity of some deeper, not yet fully understood "Meta-law" (e.g., as some theories attempt to construct, based on pursuing maximization of cosmic complexity, information-carrying capacity, life-friendliness, some cosmic self-replication or evolutionary learning mechanism, or a profound cosmic "holistic self-consistency" and "existential optimization" requirement)? Or, does all of this ultimately point towards an ineffable "Genesis Root" or "Ultimate Reason" transcending our current causal conceptions, spatiotemporal understanding, logical frameworks, and even linguistic descriptive capacities? Has this inquiry into the cosmic "Meta-question" itself already exceeded the effective investigable scope of human reason, or is it, in a new way, summoning the birth of a "Meta-wisdom" capable of unifying existence and cognition, fact and meaning?

Relatedness Theory's core response to this series of profound inquiries about the ultimate cosmic "Meta-narrative," "First Principle," or "Selection Principle" is to fundamentally dissolve the many presuppositions often implicit in these questions themselves. It does not attempt to provide a new, external "Selector's" identity for "why the cosmos is thus," an a priori "Genesis Blueprint," an ultimate "Purpose" for cosmic evolution, or a singular "Meta-law" superordinate to all specific "laws."

On the contrary, *Relatedness Theory* points out that the most profound explanation for the specific appearance, fundamental constants, physical laws, and evolutionary history exhibited by this cosmos we experience (as the overall manifestation of all "Relatedness Systems, RSs" under a specific "Commonality Reference, CR_Cosmos") is: it is the infinite potentiality of the sole ontological cornerstone—"Pure Being"—which, based on its intrinsic "relational logic" (i.e., the "inherent necessary propensities" of "Primordial Vectors, PVs" and their universal interaction

under the "Global Bidirectional Self-Organization, BSO" mechanism, this fundamental organizing principle originating from PV interactive logic), through probabilistic, non-teleologically directed self-organizing dynamics (concentratedly manifested as the "Commonality Self-Activation Mechanism, CSAM" in the structural origin phase), under the eternal drive of the intrinsic "Existence-Evolution Paradox (EEP)" unavoidable for all finite "Relatedness Systems (RSs)" and the strict limitation of the fundamental "existence-bearing capacity (C_max)" (or more generalized physical/informational constraints) it must satisfy, is one (or a series) of possible, transient paths and patterns that spontaneously and contingently (among innumerable possibilities), yet necessarily achieving some degree of logical and dynamic self-consistency to stably exist, emerge and continuously evolve and reconstruct along its "Existence-Evolution Axis (EEA)."

I. Negating External or A Priori Answers to the Ultimate "Why Thus": Dissolving Presuppositions of a "Selector," "Blueprint," "Purpose," or Singular "Meta-law"

The starting point of *Relatedness Theory* is to thoroughly bracket those traditional "meta-explanatory" frameworks that might hinder our understanding of the cosmos's intrinsic generative logic:

Rejection of an external designer or selector: The cosmos of *Relatedness Theory* is an entirely self-sufficient, intrinsically generated system. Its progression from the initial "perturbation" of "Pure Being" potentiality to the emergence and evolution of complex "Relatedness Systems (RSs)" all follows its intrinsic "relational logic" (the "inherent necessary propensities" of PVs and the universal operation of BSO) and dynamic mechanisms (CSAM, EEP). It is unnecessary, and indeed impossible within the logical framework of *Relatedness Theory*, to introduce any form of transcendent creator, designer, or "prime mover" external to "Pure Being" to explain "why the cosmos is thus" or "why it exists."

Rejection of an a priori blueprint or ultimate purpose for cosmic evolution (thorough non-teleological directionality): The structure of the cosmos, its internally emergent "laws" (as manifestations of specific CRs), and its long evolutionary history (EEA) are not pre-designed or guided to achieve some preset goal (e.g., to necessarily produce life, to evolve intelligent observers like humans, or to reach some "fulfillment of cosmic consciousness" or "perfection of existence"). *Relatedness Theory* posits that the complexity, orderliness, and even the "life-friendliness" or "aptitude for intelligence emergence" exhibited by the cosmos in certain

aspects, are more likely characteristics that appeared contingently, possibly only transiently and locally, during the cosmos's eternal, contingency-filled process of "exploration and screening" in its vast "possibility space" driven by BSO and EEP. These are characteristics identified and endowed with meaning by us (as products of this process) "post hoc," rather than being intrinsic drivers or presupposed goals of cosmic evolution.

Rejection of a singular "meta-law" or "selection principle" transcending specific processes: *Relatedness Theory* does not incline towards the view that there exists some abstract, singular "meta-law" (e.g., cosmological extensions of the "principle of least action" proposed by some theories, "principle of maximizing cosmic complexity/information-carrying capacity," "principle of existential optimization," or "cosmic self-replication/evolutionary learning mechanism," etc.) that is independent of, and superior to, all specific "physical laws" (as manifestations of particular CRs) and informational processes (as the dynamics of DPs networks and REs states), and which stipulates "which logically possible universe will ultimately be selected" or "what optimal path the cosmos as a whole must follow."

This is because, in the view of *Relatedness Theory*, any judgment regarding "optimality," "maximization," or "selection" necessarily depends on a specific "frame of reference (CR)" and corresponding "evaluation standards." And CRs themselves are dynamically evolving, relative, and self-organizedly emergent from "Pure Being" potentiality via BSO and CSAM. There is no absolute standard of "optimality" that can exist independently of all CRs.

The dynamics and evolution of all "Relatedness Systems (RSs)" are ultimately governed and limited by their intrinsic "Existence-Evolution Paradox (EEP)" (i.e., the tension between their v and T_CR/h(T)) and the fundamental "existence-bearing capacity (C_max)" (or more generalized physical/informational constraints) they must satisfy. These are intrinsic contradictions and constraints originating from the ontological condition of finite RSs themselves, not stipulations of some external "meta-law."

II. "Why This Universe?"—*Relatedness Theory's* Intrinsic Explanation: From the "Relational Grammar" of "Pure Being" Potentiality to the Probabilistic, Self-Consistency-Screened, and Contingently Constructed Historical Path of EEA Driven by EEP

Relatedness Theory transforms the profound "Meta-question," "Why is this universe we experience the way it is, and not some other possible

way?" into an understanding of the intrinsic mechanisms, probability, historical contingency, and self-consistency screening involved in the structural emergence and evolutionary path selection of the cosmos (as the grandest "Relatedness System, RS_Universe" we can currently perceive, whose core is defined by some CR_Cosmos):

1. The infinite "possibility space" and "relational grammar" defined by "Pure Being" potentiality and PVs' "inherent necessary propensities":

The ultimate source of all cosmic possibilities is the infinite potentiality of "Pure Being"; this potentiality is carried by "Primordial Vectors (PVs)" and their "inherent necessary propensities" (i.e., their unique "way or potentiality of existence and interaction").

PVs' "inherent necessary propensities" and their universal interactive logic under the "Global Bidirectional Self-Organization (BSO) mechanism" (this being the "logical genesis" originating from PVs' "bidirectional potential infinite extensibility" and "inherent necessary propensities" and their interaction) collectively define an immensely vast "possibility space." This space, in principle, contains the possibility of forming various "cosmic RSs" with different "laws" (i.e., "commonality rules" defined by different core CRs), different structures, and even different (in our experiential sense) dimensional spacetimes.

The "inherent necessary propensities" of PVs can be understood as the potentiality of the "relational grammar" operating at the most fundamental level of the cosmos. This means that any universe that might emerge, its internal operations must, to some extent, be constrained by this most fundamental "relational grammar," and thus naturally possess some "structuredness" or "regularity" that can be grasped (e.g., by an abstract language describing relations, like mathematics). The specific mathematical effectiveness and the particular forms of physical laws exhibited by our experienced universe are precisely the result of its emergent core CR_Cosmos happening to resonate profoundly with the mathematical tools (as a cognitive CR_Mathematics) developed within our human cognitive system (RS_Cognition) in describing certain aspects of this underlying "relational grammar."

2. Probabilistic "ignition" by the "Commonality Self-Activation Mechanism (CSAM)" within the BSO framework and the contingency of cosmic "initial conditions":

The traceable "beginning" of the universe we experience (if a clearly definable "beginning" exists, e.g., the "Big Bang" singularity in

traditional cosmology, which in *Relatedness Theory* should rather be understood as a relative starting point or key "transition node" on our current universe's EEA_Cosmos) can be understood as CSAM (as a specific manifestation of BSO in the structural origin phase) probabilistically "igniting" the initial "Dependency Path (DPs)" network and "structural seeds" capable of forming the specific "existence basis" (i.e., the initial CR_Cosmos_Initial) of this universe of ours, from the infinite potentiality background of "Pure Being," based on PVs' "inherent necessary propensities" and ("potential commonality rules" gradually clarified in early BSO interactions).

Profound contingency of initial conditions: In the infinite potentiality and eternal fluctuations of "Pure Being," which region's PV fluctuations first cross the critical threshold for forming a stable CR? Which PVs' "inherent necessary propensities" or the "potential commonality rules" embodied by their combinations are preferentially activated and stabilized in the initial CSAM process? These initial activation patterns and the characteristics of the emergent CR_Cosmos_Initial are all highly contingent. Different initial "ignition" modes (e.g., initial activation probabilities of different PV "propensity" combinations, different "Pure Being" fluctuation backgrounds) could well lead to paths forming cosmic RSs with entirely different core CR rules, and thus evolving into universes drastically different from ours. The specific initial conditions of our universe (e.g., the extremely low entropy state of the early universe, the specific numerical ranges of fundamental physical constants) may be just one among these infinite possibilities that happened to be actualized and stably evolved.

3. BSO's self-organizing screening, path dependence, and "self-consistency" as intrinsic requirements for stable existence:

The initial cosmic structure produced by CSAM (CR_Cosmos_Initial and the preliminary RS_Cosmos it defines) will undergo continuous evolution and reconstruction via the "Global Bidirectional Self-Organization (BSO) mechanism." BSO's operational process possesses profound path dependence: early formed CR structures and DPs network patterns will deeply influence and constrain the formation and evolutionary possibilities of subsequent structures (including more complex REs, RLs, and even higher-order CRs). Minute differences in initial conditions or contingent events on the evolutionary path can be amplified by BSO's non-linear dynamics, leading the cosmos towards entirely different evolutionary branches.

"Self-consistency" as an intrinsic "selection principle" (a result of dynamic screening, not a presupposed goal): In the continuous evolution of the cosmos (RS_Cosmos) driven by BSO, those structural patterns and "law" systems that, under their core CR_Cosmos's "commonality rules," contain severe internal logical contradictions, dynamic instabilities, or an inability to effectively manage their internal "Existence-Evolution Paradox (EEP)," due to their inherent, unavoidable "structural stress" or excessive "cost of existence," will find it more difficult to maintain their core CR_Cosmos's "period of definitional power (T_CR_Cosmos)" for long on EEA_Cosmos. Thus, in continuous evolution, they are more likely to disintegrate, be reconstructed, or transform into other more stable forms. As a result, relatively speaking, those CR_Cosmos structures and their defined "laws" and RS_Cosmos forms that coincidentally emerge in BSO's long-term evolution and exhibit a higher degree of internal logical self-consistency, dynamic stability, and effective management of their EEP contradictions, are more likely to stably exist on EEA_Cosmos (i.e., possess longer T_CR_Cosmos "plateau phases") and are therefore more likely to be observed by cognitive subjects like us (who are products of its evolution). The seemingly "exquisite," "coordinated," and "just right" nature of the cosmic laws and structures we observe does not originate from some external "design" or a "pursuit" of some "optimal state." Rather, it is more likely the retained, relatively self-consistent solutions in logic and dynamics, capable of relatively stably managing their own existence and evolutionary contradictions, that this cosmic RS_Cosmos has arrived at after a long process of "trial and error" and "dynamic screening" filled with contingency and governed by BSO.

Contingency of core CR_Cosmos emergence: The emergence of any core CR_Cosmos capable of defining a cosmic-scale RS_Cosmos is itself an extremely complex, contingency-laden self-organizing process within the infinite possibility space of "Pure Being," via BSO and CSAM mechanisms. Which specific "commonality focus" (or foci) capable of forming a stable reference and governing a vast region of "Relational Reality" can first form and stabilize profoundly determines the basic rules, nature, and subsequent evolutionary fate of this "cosmic RS."

4. EEP and EEA_Cosmos as fundamental shapers of our cosmic history:

Even if a relatively stable RS_Cosmos (defined by its core CR_Cosmos) is formed, its entire subsequent evolutionary history is necessarily driven and fundamentally limited by its intrinsic "Existence-

Evolution Paradox (EEP)" (i.e., the tension between its overall evolutionary rate v_Cosmos and its core CR_Cosmos's T_CR_Cosmos and h(T)_Cosmos, operating under its C_max_Cosmos constraint).

Uniqueness and historical cumulative effect of EEA_Cosmos: This universe we experience possesses its own unique "Existence-Evolution Axis (EEA_Cosmos)" history. This history is filled with EEP-driven "displacement" and structural reconstruction events of its core CR_Cosmos (or its internal key cosmological SROs), possibly occurring at different cosmological scales and time scales, and contingently triggered (e.g., possible phase transitions in the early universe, spontaneous symmetry breaking, differentiation of fundamental interaction forces, formation of large-scale structures, etc.). The fundamental laws, structural characteristics, numerical values of physical constants, and the specific conditions allowing for the emergence of life and consciousness that our universe currently exhibits are all cumulative results of its long and unique EEA_Cosmos evolutionary history, products of specific path dependence.

5. *Relatedness Theory's* interpretation of the "Anthropic Principle": As a natural inference of the Weak Anthropic Principle and the possible emergence of a "Structural Anthropic Principle."

Negation of the presupposed teleology of the Strong and Final Anthropic Principles: The thoroughly non-teleologically directed nature of *Relatedness Theory* makes it fundamentally incompatible with views holding that "the laws and constants of the universe must be exquisitely designed to allow consciousness (especially human consciousness) to eventually arise" (Strong Anthropic Principle), or that "the ultimate goal of the universe is to evolve intelligent structures capable of eternal existence and processing infinite information" (Final Anthropic Principle). These all imply some "presupposed purpose" or "ultimate blueprint" for cosmic evolution.

The Weak Anthropic Principle becomes an almost trivial, post hoc observational logical inference in *Relatedness Theory*: The Weak Anthropic Principle (that the properties of the universe observed by us as observers must be consistent with the conditions for us as observers to exist) becomes, within the framework of *Relatedness Theory*, an almost self-evident logical inference based on "observer selection bias." Our very existence (as an extremely complex Cognitive Relatedness System, RS_Cognition, dependent on specific cosmic conditions) is a product of

this universe of ours on its specific EEA_Cosmos evolutionary path and within the stable period (plateau phase) defined by the current CR_Cosmos_Current. We necessarily exist in a universe whose laws and conditions (defined by CR_Cosmos_Current) happen to allow our kind of structure to emerge and be sustained. This is not the universe "existing for us," but rather "we can only exist in such a universe."

Possible "Structural Anthropic Principle": The extremely high requirements of RS complexity and CR organizational principles for the emergence of consciousness: Furthermore, the perspective of *Relatedness Theory* might support a more profound idea, which could be termed a "Structural Anthropic Principle." That is, the generation of "consciousness" as we experience it (especially intelligent consciousness capable of self-reflection and understanding the cosmos) might require a specific type of "Relatedness System (RS_Cognition)" structure that is extremely complex, possesses highly hierarchical organization, has powerful information integration and processing capabilities, and whose core CRO_Self can achieve profound self-referentiality. And the formation of such an RS_Cognition structure capable of giving rise to consciousness might itself be an extremely rare, contingency-laden event in the infinite "possibility space" of "Pure Being" through the self-organizing evolutionary processes of BSO and CSAM, requiring the satisfaction of numerous stringent conditions, making it a very low probability event (though not logically impossible). That we happen to exist as such observers, in such a cosmic branch or evolutionary stage whose EEA_Cosmos path contingently, yet in accordance with its intrinsic "relational logic," emerged and sustained this complex RS structure allowing for consciousness, is likewise not the universe being "designed" or "selected" "for" us or for the generation of consciousness. Rather, it is our unique cognitive structure, capable of "self-observation," whose very existence "screens" the type of universe it can experience.

III. Re-examination of the Enigma of Cosmic Understandability: Confirmation of the Profound Resonance at the Level of "Relational Logic" Driven by BSO Between Cognitive CR and Cosmic CR (Consistent with the Conclusion of the Fourth Question and Re-emphasized Here as Part of the Answer to the "Meta-Question")

Why the cosmos is, to a large extent (at least for us humans as specific cognitive subjects, RS_Cognition), understandable, especially its profound mathematical understandability in many aspects, is itself a non-

trivial phenomenon requiring explanation.

Relatedness Theory's intrinsic explanation—knowability originates from a profound resonance between the cognitive subject and cosmic reality at the level of "relational logic" or "structural grammar": As stated previously in Part II, *Relatedness Theory* believes this is not an inexplicable "coincidence" or a "miracle" requiring recourse to some external "divine harmony," but a natural inference from its "primacy of relations" ontology and the universal operational principles of "Global Bidirectional Self-Organization (BSO)." The root of knowability lies in:

1. The cosmos (as RS_Universe, defined by its core CR_Cosmos) itself operates based on "relational logic" (ultimately originating from the "inherent necessary propensities" of PVs and the universal interaction of BSO) at its most fundamental level: its structure (defined by layers of CRs) and evolution (driven by EEP, realized via BSO) both follow intrinsic, abstractable "relational rules" and "organizational principles."

2. "Mathematics (as part of our cognitive CR_Cognition) happens to be one of the most effective languages for abstracting and formalizing this universal 'relational logic' and 'structural patterns': Mathematics can be used to describe the cosmos because it provides a set of formal tools capable of directly grasping and deducing 'relations,' 'structures,' 'changes,' and 'patterns,' transcending specific material carriers."

3. Our human cognitive system (RS_Cognition) and its internal cognitive CRs (including our capacity for logical reasoning and mathematical thinking), as products of the long-term evolution of the cosmos (or its specific ARO, such as Earth's biosphere), have, to some extent, internalized, adapted to, and "resonated" with the most basic operational modes and "relational grammar" of the cosmos via the BSO mechanism: This is gradually formed through long-term BSO interactions (including natural selection in biological evolution, and learning, adaptation, and cultural construction in human cognitive development).

Understandability is a relative, limited resonance, not absolute, complete access: Our degree of understanding depends on the depth and breadth of "resonance" that can be achieved between our cognitive CRs and the "relational logic" and "structural patterns" of specific aspects of the cosmos (defined by its own CRs). The parts we can understand are those aspects of cosmic "Relational Reality" that our cognitive CRs can successfully "match," "model," and effectively predict and intervene in. And the parts we currently cannot understand, or may never fully

understand in the future, reflect the limitations of this "resonance"—possibly due to the incompleteness of our cognitive CRs themselves, possibly because the infinite complexity of cosmic reality exceeds our cognitive RS_Cognition's C_max, or possibly due to more fundamental CR framework mismatch or ontological layer differences.

IV. The Ultimate Reason and the "Meta-wisdom" in *Relatedness Theory's* Tableau: Dissolving the Obsession with a Singular "Why," Returning to the Understanding of and Participation in the Eternal Evolutionary Process of "Relational Reality" Itself

Relatedness Theory ultimately does not provide a singular, ultimate external reason for "why the cosmos is thus," nor a "meta-law" that can once and for all explain all phenomena. It inclines more towards profoundly dissolving the traditional presuppositions upon which this question itself relies (i.e., the belief that there must exist a unique "specific selection" event that needs to be explained, or an "optimal design blueprint" that the cosmos must follow).

The cosmos "is what it is" because the intrinsic "generative and evolutionary logic" of "Relational Reality" revealed by *Relatedness Theory* is such: The cosmos exhibits the specific appearance we observe (including its initial conditions, physical constants, forms of laws, and characteristics enabling the evolution of observers like us) because this is one (or a collection) of possible, transiently stable evolutionary paths and modes. It emerges spontaneously and contingently (among innumerable possibilities), yet must satisfy internal logical self-consistency and dynamic stability to persist, from the infinite potentiality of the sole ontological cornerstone "Pure Being." This emergence is based on the intrinsic "relational logic" (i.e., the "inherent necessary propensities" of "Primordial Vectors, PVs" and their universal interaction under the "Global Bidirectional Self-Organization, BSO" mechanism, this fundamental organizing principle originating from PV interactive logic), triggered by "Pure Being's" eternal fluctuations, through the probabilistic "ignition" and "structural solidification" of the "Commonality Self-Activation Mechanism, CSAM)." It occurs under the eternal drive of the "Existence-Evolution Paradox (EEP)" and the strict limitation of the fundamental "existence-bearing capacity (C_max)," within an extremely vast "possibility space," from countless possible "Existence-Evolution Axis (EEA)" paths. It has no deeper "purpose" or "reason" external to this process itself, much like the formation of a specific, complex vortex

pattern in turbulence; it is the most fundamental dynamic and probabilistic natural product we can trace, based on the basic principles of *Relatedness Theory*.

If a "meta-narrative" exists, it is the unceasing dynamic process itself of "Relational Reality" continuously generating, evolving, and reconstructing along the EEA, fraught with contingency and creativity, rather than some fixed "script" written at the "beginning" of the cosmos or awaiting revelation at the "end."

Regarding "whether there exists a 'meta-wisdom' transcending existing logic"?

Relatedness Theory itself, in its construction and its way of understanding the cosmos, perhaps gestates the rudiments of such a possible "meta-wisdom": it is a way of thinking profoundly based on relation, process, context, hierarchy, contradiction, relativity, and whose changes do not point to any presupposed goal. It inspires any intelligent life capable of self-reflection (RS_Cognition) to abandon the obsession with singular, absolute, ultimate explanations and the quest for eternally immutable "entities" or "truths," and instead to profoundly understand and appreciate the intrinsic logic and magnificent tableau of dynamic generation, complex relatedness, and eternal evolution of all things in the cosmos (all RSs).

However, *Relatedness Theory* does not extol any single form of wisdom as supreme. Given that the "Existence-Evolution Paradox (EEP)" is an eternal, intrinsic paradox permeating all finite "Relatedness Systems (RSs)" (from the simplest physical structures to the most complex cognitive systems, and even the cosmos itself as a possible ultimate RS), then perhaps a profound insight into the essence of EEP, understanding its operational mechanism, and learning to maintain the relative stability of one's own (as RS_Self) "existence basis" (CRO_Self) and explore new possibilities in a lucid, dynamic, and creative manner amidst the eternal changes and reconstructions it drives—this itself is the only "wisdom" strictly consistent with the cosmic tableau of *Relatedness Theory*.

The value of this "wisdom" lies not in finding some static, final answer that can once and for all address every "why thus," nor in discovering that ultimate solution applicable to all problems which can end all contradictions. Its value lies in profoundly understanding and lucidly participating in this "Relational Reality" itself—which is woven by the universal interactive logic of "Global Bidirectional Self-Organization (BSO)" against the background of "Pure Being's" infinite potentiality, driven by the eternal "Existence-Evolution Paradox (EEP)," and

continuously self-creating and reconstructing along its unique "Existence-Evolution Axis (EEA)."

Concluding Elucidation: The "Meta" of the Cosmos—In the Vision of *Relatedness Theory*, it is the Unpresupposed, Eternal Self-Organizing Generation and Evolution of "Relational Reality" Based on its Intrinsic Logic

Faced with the ultimate inquiry of "why the cosmos is thus" and whether there exists a "meta-narrative" or "first principle" governing all, the answer given by *Relatedness Theory* is profound and, to some extent, subversive. It points not to an explanation external to the cosmos's own operation or some a priori stipulative principle, but to the cosmos's own intrinsic generative and evolutionary logic, based on a "primacy of relations" ontology and "non-teleologically directed change" dynamics.

The reason the cosmos "is the way we experience it" is because:

1. The sole ontological foundation—the infinite potentiality of "Pure Being"—intrinsically and ontologically contains the "Primordial Vectors (PVs)" and their "inherent necessary propensities" for forming all possible "Relatedness Systems (RSs)," and the eternal intrinsic fluctuations of "Pure Being" provide the initial, universal "source of possibility" and "perturbation background" for all change and structural generation.

2. The "Global Bidirectional Self-Organization (BSO) mechanism," originating from the "logical genesis" of PVs' "bidirectional potential infinite extensibility" and "inherent necessary propensities" and their interaction, as the most universal organizing principle and mode of operation of the cosmos, enables the "inherent necessary propensities" of PVs and the "potential commonality rules" emerging therefrom to provide intrinsic directionality and selection mechanisms (where "selection" here refers to dynamic stabilization screening, not teleological selection) for the probabilistic self-activation of relations (concentratedly manifested as the "Commonality Self-Activation Mechanism, CSAM" in the structural origin phase) and for self-organizing evolution.

3. Any finite "Relatedness System (RS)" manifested from "Pure Being" necessarily falls into its intrinsic "Existence-Evolution Paradox (EEP)" (i.e., the conflict between its transformative propensity v and its existence basis CR's stability T_CR and maintenance cost h(T)), and, under the fundamental constraint of its finite "existence-bearing capacity

(C_max)" (or more generalized physical/informational constraints), seeks dynamic equilibrium and periodic structural reconstruction.

4. The universe we inhabit (as RS_Universe, defined by its core CR_Cosmos) and the specific laws, structures, and physical constants it exhibits, are one (unique to us, but possibly one among many in the infinite possibility space of "Pure Being") possible, transient actualized outcome of this grand evolutionary process, which is filled with profound contingency, path dependence, self-consistency screening (the result of BSO driven by EEP), and periodic reconstruction ("displacement" along its EEA_Cosmos).

Relatedness Theory replaces the traditional quest for static substrates, external designs, or ultimate purposes with a dynamic, intrinsic, probabilistic, relational generative tableau. The so-called "selection" of "why the cosmos is thus" comes not from some transcendent external force or some presupposed "meta-law," but is intrinsic to the probability distribution and self-organizing dynamics of "Pure Being" potentiality actualizing its own "relational possibilities" via BSO and CSAM mechanisms. The "laws" (as manifestations of a specific CR_Cosmos) and "structures" (as organizational patterns of DPs networks and REs) of the universe we experience are emergent, relative, and dynamically mutable in the evolution of EEA_Cosmos. The so-called "Anthropic Principle," within the non-teleologically directed framework of *Relatedness Theory*, is more a natural inference of a weak form based on "observer selection bias," and a hint of a possible "Structural Anthropic Principle" concerning the extreme complexity of RS structure required for the emergence of consciousness. And the "understandability" of the cosmos originates from the profound resonance at the level of underlying "relational logic," shared by our cognitive CRs as cognitive subjects (RS_Cognition) and the CR_Cosmos of the cosmic RS_Universe we observe, both originating from PVs and BSO.

Therefore, *Relatedness Theory* ultimately does not provide a simple "meta-narrative" or "first principle" that can once and for all answer every "why." Instead, it profoundly reveals that "existence" itself is an ongoing, self-generating "meta-process," fraught with intrinsic contradictions and infinite possibilities. Understanding the intrinsic logic of this process—that is, how the infinite potentiality of "Pure Being," through the "inherent necessary propensities" of "Primordial Vectors (PVs)" and their universal interactive logic under "Global Bidirectional Self-Organization (BSO)," via "Commonality Self-Activation (CSAM)"

igniting initial references (CRs), weaves the relational web of "Dependency Paths (DPs)," gives rise to hierarchical "Relatedness Systems (RSs)," and, driven by the eternal "Existence-Evolution Paradox (EEP)," along their unique "Existence-Evolution Axes (EEAs)," continuously undergoes "displacement" of their "existence basis," engaging in an eternal, self-organizing "structural enactment" fraught with contingency and creativity, whose changes do not point to any presupposed goal, in continuous interaction with relative "Pure Nothingness"—this, perhaps, is the most profound "wisdom" regarding the "Meta" of the cosmos that we, as finite cognitive subjects, can attain. It summons us to relinquish the obsession with some ultimate, "static answer" transcending the process itself, and instead to embrace and participate in this infinite, ever-unfolding game of cosmic self-creation, the rules and play of which are in the "web of relations."

Part Six: Relatedness Theory's View of Spacetime—As the Dynamic Emergence of "Relational Ordinal Structure" Under the Reference of a "Commonality Reference (CR)"

I. Dispelling Traditional Conceptions: Spacetime is Neither a Presupposed Absolute Background Nor the Sole Ontological Cornerstone

In the long history of human exploration of the cosmos, "spacetime" has always occupied a central philosophical and physical position. Traditional physics, particularly Newtonian mechanics, regarded time and space as absolute, uniform, and mutually independent "containers" or "background stages" upon which all things in the cosmos enacted their respective motions and changes. Albert Einstein's General Relativity (GR) brought about a revolutionary breakthrough, unifying spacetime into a dynamic, pliable geometric manifold, its curvature determined by the distribution of matter and energy within the cosmos, which in turn dictates the trajectories of matter and energy. Spacetime was no longer a rigid background but a physical reality profoundly interacting with matter and energy. This was undoubtedly a tremendous advance in the history of human understanding.

However, even General Relativity, in its classical formulation, still to some extent presupposes the spacetime manifold as a fundamental "existence" with an ontological status and certain basic attributes (e.g., its continuity, differential geometric structure, etc.). *Relatedness Theory*, on the other hand, attempts to re-examine and understand the essence of "spacetime" at a more fundamental ontological level—namely, the level of "primacy of relations." It boldly inquires: is the "spacetime manifold" we experience and describe itself also emergent from a deeper "Relational Reality," constituted by a network of "Dependency Paths (DPs)," through some mechanism? If so, what then are the true essences of time and space? How are they generated from the most primordial potentiality of "Pure Being"?

II. The Essence of Space: In the Vision of Relatedness Theory, as the Emergence of "Extensionality" and "Ordinal Relation" Patterns of the "Dependency Path (DPs)" Network Under the Reference of a Specific "Spatial Commonality Reference (CR_Spatial)"

Within the ontological framework of *Relatedness Theory*, there exists no pre-existing, vacuous "spatial container" awaiting population by all things in the cosmos. The "space" we perceive and measure, its deep nature is understood as a macroscopic, ordered structural attribute or relational pattern exhibited by the "Dependency Path (DPs)" network that constitutes the foundation of "Relational Reality" (these DPs originate from the "inherent necessary propensities" of "Primordial Vectors, PVs," and are activated and woven from "Pure Being" potentiality via the "Global Bidirectional Self-Organization, BSO" mechanism and, in the structural origin phase, the "Commonality Self-Activation Mechanism, CSAM"). This "spatial" mode of order can only be stably manifested, identified, and measured under the reference, definition, and organization of one (or a set of) specific, self-organized emergent "Spatial Commonality Reference(s) (CR_Spatial)."

The core role of a "Spatial Commonality Reference (CR_Spatial)": *Relatedness Theory* hypothesizes the existence of one or more "Commonality References (CRs)" whose core "commonality rules" and "definitional power" lie in establishing and maintaining the "spatial" order as we understand it. These "spatial commonality rules" may (at the philosophical principled level) include:

1. Defining "Extension/Separation": That is, stipulating that a perceivable "separation" state or a "distance" concept, achievable only through a specific number of DPs connections, can exist between different "Relative Entities (REs)" (as stable projection patterns of the DPs network). This might originate from certain DPs themselves possessing some (generalized) "length" or "transmission damping" characteristic, or from certain CR rules disallowing direct DPs connections between certain REs (manifesting a kind of "repulsiveness").

2. Defining "Adjacency/Connectivity Topology": That is, stipulating which REs can be considered spatially "adjacent" or "directly connectable" via one (or a few) DPs. This is directly determined by the actual connection topology of the DPs network within an RS, and this

topology itself is also formed under the reference of CR_Spatial and the operation of BSO.

3. Defining "Dimensionality": That is, stipulating the number of independent parameters required to describe an RE's "spatial position" relative to other REs or some reference point (possibly defined by CR_Spatial). This may be related to the degrees of freedom of DPs network connections constituting that spatial region, or the organizational complexity of CR_Spatial itself as a complex relational structure.

4. Defining "Metric/Geometry": That is, stipulating how measurable attributes such as "distance," "angle," "curvature" of paths, and overall geometric form emerge from the connection characteristics and interactions of the underlying DPs network. A specific CR_Spatial, through its inherent "commonality rules," is like "endowing" this DPs network with a (relative, emergent) geometric structure.

The "Dependency Path (DPs)" network as the carrier for the emergence of "space": When a large number of "Primordial Vectors (PVs)," driven by "Pure Being" fluctuations and BSO, activate "Dependency Paths (DPs)" possessing the "potential commonality" to collectively construct "spatial order" via the CSAM mechanism, and these DPs, under the reference and organizational action of one (or a set of) specific "Spatial Commonality Reference(s) (CR_Spatial)," self-organizingly weave into a relatively stable network with specific extensionality, connectivity topology, dimensional characteristics, and metric/geometric structure via the BSO mechanism, "space" then emerges as a macroscopic emergent property of this DPs network.

The relativity of the "spatial position" of "Relative Entities (REs)": The so-called "spatial position" of an RE is not its inherent, absolute attribute, but its relative position within this "spatial relational ordinal structure" defined by CR_Spatial and constituted by the DPs network. It is jointly determined by the complex spatial relations (e.g., adjacency, distance, direction) established by DPs between that RE and all other REs (under the same CR_Spatial reference), as well as its referential relationship with CR_Spatial itself, which may serve as the "spatial origin" or "coordinate system benchmark."

The relativity, dynamism, and evolvability of "space":

1. CR-dependence of space: Different "Spatial Commonality References (CR_Spatial)" will define "spaces" with different structural

characteristics (e.g., different numbers of dimensions, different curvature properties, or even entirely different topological connection modes). The three-dimensional Euclidean space we experience, which appears flat, may, in the view of *Relatedness Theory*, be merely an effective, relatively stable pattern (within a specific precision and range) emerging from the cosmic-scale DPs network under the reference of a specific CR_Spatial (which might be an aspect of the cosmological core reference CR_Cosmos) adapted to our macroscopic physical world and cognitive capacities.

2. Dynamic evolution of space: Since the CR_Spatial defining space is itself a dynamically evolving "Relatedness System (RS)" (or rather, it is the core CR of some grand RS), its inherent "commonality rules" and the underlying DPs network structure it depends on will also change on its own "Existence-Evolution Axis (EEA)" driven by "Existence-Evolution Paradox (EEP)" (e.g., CR_Spatial's "period of definitional power T_CR_Spatial" is exhausted and undergoes "displacement"). Therefore, "space" structure itself is also dynamically evolving in *Relatedness Theory*, and can even be fundamentally reconstructed at EEA "transition nodes." Phenomena such as cosmic expansion, discovered through astronomical observation, and spacetime curvature caused by massive celestial bodies, can be profoundly understood in *Relatedness Theory* as manifestations of the dynamic evolutionary process—driven by its intrinsic EEP—of that core CR_Spatial (e.g., CR_Cosmos) defining our cosmic spatial characteristics and the cosmic-scale DPs network it supports.

III. The Essence of Time: In the Vision of Relatedness Theory, as the Emergence of "Changeability" and "Ordinal Relation" Patterns of the "Dependency Path (DPs)" Network Under the Reference of a Specific "Temporal Commonality Reference (CR_Temporal)"

Similar to the understanding of space, *Relatedness Theory* also thoroughly negates the existence of an "absolute time" that flows uniformly, independent of the specific changes and event processes of all things in the cosmos, as Newton envisioned. The "time" we perceive and measure, its deep nature is understood as a measure and ordinal relation pattern of the intrinsic, unavoidable continuous changeability, the sequentiality of event occurrence, and the rhythmic differences exhibited by different dynamic processes within "Relational Reality" (including the DPs network, the REs patterns manifested upon it, and even the CRs defining them). This "temporal" mode of order, likewise, can only be stably manifested and experienced and grasped by us (as cognitive subjects) under the reference, definition, and organization of one (or a set of) specific, self-organized emergent "Temporal Commonality Reference(s) (CR_Temporal)."

The core role of a "Temporal Commonality Reference (CR_Temporal)": *Relatedness Theory* hypothesizes the existence of one or more "Commonality References (CRs)" whose core "commonality rules" and "definitional power" lie in establishing and maintaining the "temporal" order as we understand it. These "temporal commonality rules" may (at the philosophical principled level) include:

1. Defining "Change/Eventfulness": That is, stipulating that the state of a system (RS) can change, and that identifiable and distinguishable "events" exist (e.g., the generation or demise of an RE, the activation or severance of a DP, the "displacement" of a CR). The ultimate root of this "changeability" lies in the eternal intrinsic fluctuations of "Pure Being" and the continuous dynamics driven by the "Existence-Evolution Paradox (EEP)" that any finite RS necessarily faces.

2. Defining "Sequentiality/Order": That is, stipulating that a certain "before-and-after" relative relationship can exist between different "events" or state changes. This "before-and-after" relationship may originate from certain "Dependency Paths (DPs)" transmitting influence (e.g., information flow or (relative) causal chains) requiring a certain

"process" (even if this "process" at the most fundamental level might be related to the "length" or "transmission characteristics" of DPs), or from certain complex processes (e.g., the generation of an RE) logically or structurally depending on the pre-existence and specific state of other antecedent REs or DPs networks.

3. Defining "Duration/Periodicity": That is, stipulating that a certain specific RE state, DPs connection pattern, or CR's "commonality rule" can (relatively) stably persist for a period (e.g., a CR's "period of definitional power T_CR"), or that certain changes within the system can exhibit identifiable, repeatable periodic patterns. This is closely related to the CR's own stability (T_CR) and the characteristic timescales exhibited by the RS's internal dynamics (governed by EEP and BSO).

4. Defining the "Rate/Tempo" of change: That is, stipulating how to measure and compare the "speed" of different change processes. This usually requires introducing a referential "clock"—i.e., selecting a process considered highly stable and periodic (e.g., the oscillation of a specific atom, or the Earth's rotation and revolution, all of which can be considered operational modes of "Relatedness Levels, RLs" defined by specific SROs with stable T_SROs in *Relatedness Theory*) as the referential standard for "time units."

The "Dependency Path (DPs)" network dynamics as the carrier for the emergence of "time": "Time," as a dimension perceivable and measurable by us, emerges only when the "Dependency Path (DPs)" network of "Relational Reality" undergoes dynamic change. When the state of "Relative Entities (REs)" (including the structural information they carry and their own stability/determinacy states) changes as influence is transmitted along DPs, when the connection topology or activation patterns of the DPs network itself adjust, when the core "Commonality Reference (CR)" defining that RS's operational rules itself (its "commonality rules" or the DPs network structure it depends on) evolves (e.g., undergoes "displacement" on its EEA), "change" occurs. A specific "Temporal Commonality Reference (CR_Temporal)" (which might be an aspect of the cosmological core reference CR_Cosmos, or a time referential framework CR_Time_Cognitive constructed within our cognitive system RS_Cognition to organize experience), by providing a referential standard capable of comparing the "before-and-after" sequence of different "events" or state changes (e.g., defining a global or local, relative "temporal coordinate"), and by establishing a unified standard for measuring the "rate" or "duration" of change (e.g., by

selecting a stable periodic process as a "clock" SRO and thereby defining "time units"), organizes these discrete or continuous, diffuse changes within the DPs network into the "flow of time" that we understand and experience, which seems to possess unidirectional passage.

Relatedness Theory's understanding of "The Present": In the vision of *Relatedness Theory*, "the present" is not an infinitely thin, fleeting "point" on the time axis. It should rather be understood as a dynamic "slice of existence" or "field of experience" with a certain "thickness" or "extensionality," integrated by the current cognitive subject's (RS_Cognition) Core Self-Reference (CRO_Self). This "present" is a co-constitution, intertwined with the state of its currently activated "Dependency Path (DPs)" network, the rules of its core "Cognitive Commonality References (CRs_Cognitive)" currently in operation, its directly related past states (e.g., activated short-term memory REs), and its anticipation of immediately future possible events (e.g., potential DPs or REs patterns inferred from current CRs and DPs network states to be activated). Different cognitive subjects, due to differences in their CRO_Self and internal CRs_Cognitive, may experience "the present" with different "thicknesses" and contents.

The relativity, dynamism of "time" and its profound dependence on EEA:

1. CR-dependence of time: Similar to space, the rate of time's passage, the "simultaneity" (relative) of events, and our perception and measurement of temporal structure profoundly depend on the "Temporal Commonality Reference (CR_Temporal)" we select or are situated in. For example, in a strong gravitational field as described by General Relativity (which can be understood in *Relatedness Theory* as a region where the "geometric characteristics" of its CR_Spatio-temporal undergo significant "curvature"), the rate of time passage will change relative to a weak gravitational field region (gravitational redshift/blueshift of time). Different observers (if they are each RS_Cognition with different internal CR_Cognitive, or if the physical environment RSs they are in are governed by different CR_Spatio-temporals, or if their "state of motion"—i.e., the rate of continuous change of their REs patterns relative to some reference CR—in the DPs network differs) may also construct different judgments of "simultaneity" for the same series of distant events.

2. Profound connection with the "Existence-Evolution Axis (EEA)"—EEA as the most fundamental concept of "time" in *Relatedness Theory*:

The "Existence-Evolution Axis (EEA)" itself, as an ordered historical trajectory recording a series of fundamental "displacement" events of an RS's core CR (i.e., its "existence basis"), can be considered the most fundamental concept of "time" in *Relatedness Theory*, intrinsic to the RS's evolutionary process itself. The EEA marks not uniformly flowing "seconds" or "years" measured by an external clock, but the "logical sequence" and "historical depth" of qualitative transformations in an RS's "existence paradigm." "Time" on the EEA is intrinsic, non-linear, and driven and marked by key "CR displacement events." The seemingly continuous, smooth, unidirectionally flowing stream of time we perceive daily may, in *Relatedness Theory's* view, be merely a macroscopic approximation resulting from our statistical averaging and cognitive construction of a vast number of minute, continuous DPs network state changes and REs pattern evolutions within a very stable (i.e., its T_CR is extremely long) EEA "plateau phase" of a specific core CR (e.g., our current universe's CR_Cosmos, or our cognitive system's CRO_Self). And the "transition nodes" on the EEA (fundamental "displacement" of a core CR) represent the rupture, reshaping, and "recalibration" of the "temporal structure" (i.e., the referential framework defining event sequence and rate of change) itself.

3. The "Principle of Relative Causal Restructuring" and the subversion of the concept of time: Precisely because "time" (as a CR-dependent ordinal relation) and "laws" (as commonality rules defined by CRs) can both undergo fundamental reconstruction at EEA "transition nodes," *Relatedness Theory's* "Principle of Relative Causal Restructuring" gains its profound ontological basis. After a CR undergoes "displacement," not only do the causal connection patterns between events change, but even our understanding of the "sequential order" of event occurrence (if this "order" depends on the old CR's referential framework) may need to be re-examined. This might lead to the appearance of phenomena that seem like "time inversion" or "non-local causality" (relative to the expectations of the old CR), but this is not time actually "flowing backwards"; rather, it is the core CR defining "temporal order" and "causal rules" that has itself undergone a fundamental transformation.

IV. The Unity and Potential "Entanglement" of Spacetime: Originating from the Same Foundational "Relational Reality" Network and Co-Emerging Under CR Reference

"Time" and "space" are not two mutually independent, a priori dimensions: In the vision of *Relatedness Theory*, time and space are not two dimensions that can be completely separated and independently defined. Instead, they are different (yet profoundly entangled and mutually defining) ordinal aspects exhibited by the same foundational "Relational Reality" (i.e., the "Dependency Path, DPs" network activated and woven from the PV potentiality of "Pure Being" via BSO and CSAM mechanisms) under the reference and "projection" of a specific, possibly unified, "Spatio-temporal Commonality Reference (CR_Spatio-temporal)."

CR_Spatio-temporal as the carrier for the unified description of spacetime: If a unified CR_Spatio-temporal exists (e.g., our current universe's CR_Cosmos) that can simultaneously stipulate the extensional characteristics (thereby giving rise to "spatiality") and change characteristics (thereby giving rise to "temporality") of "relations" within its RS_Cosmos, then this CR_Spatio-temporal constitutes the basis for the unified description and understanding of "spacetime." Under its reference, the geometric structure of "space" and the rhythmic flow of "time" may be interdependent and inseparable.

Potential profound entanglement of information, BSO, and spatiotemporal order:

Relatedness Theory posits that "information" (as patterns of "relatedness and difference" transmitted in DPs, endowed with context and meaning by CRs) and its flow, processing, and integration within an RS (via the BSO mechanism) may be profoundly entangled with the emergence and stability of "spacetime" order.

For example, the degree of clear "localization" of a "relational pattern" in "space" (i.e., whether it can be clearly positioned within a finite "spatial region"), or its stable "durational" capacity in "time" (i.e., the length of its T_CR), may both be closely related to its intrinsic "degree of information organization," "self-consistency," and its ability to effectively "exchange information" with the surrounding DPs network.

Furthermore, if the CR_Spatio-temporal defining "spacetime" is itself also emergent and evolving from a more fundamental "Relational Reality" via the BSO mechanism, then the structure and dynamics of "spacetime" will necessarily be profoundly influenced by the information transmission

characteristics of its constituent DPs network (e.g., whether there is some upper limit to the speed of information transmission, or whether non-local DPs connections exist) and the organizational efficiency and hierarchical complexity of the BSO process itself.

(In *Relatedness Theory's* more forward-looking theoretical explorations, it might even be considered whether "spacetime" geometry itself can be understood as arising from some more fundamental "quantum information" or "relational information" network (e.g., a "pre-geometric" structure constituted by PVs' "potential commonality labels" and the "potential relations" formed between them via BSO) through some form of "coarse-graining" or "macroscopic emergence." In such a tableau, non-local correlation phenomena like "quantum entanglement" might not merely be peculiar connections between particles in a "spacetime" background, but might directly reveal certain non-classical characteristics of that deeper "Relational Reality" from which "spacetime" itself emerges.)

Might spacetime be discrete or possess non-classical geometric properties at the most fundamental level?

If the "Dependency Path (DPs)" network constituting the foundation of "Relational Reality" is discrete at the most fundamental level (e.g., its number of connections or "length" units possesses some indivisible minimum value), or if that most fundamental "Spatio-temporal Commonality Reference (CR_Spatio-temporal_Fundamental)" defining "spacetime" itself possesses some discrete, quantized, or non-classical geometric/topological structural characteristics (this might originate from certain discrete "inherent necessary propensities" of "Primordial Vectors, PVs" in "Pure Being" potentiality or their combination rules), then the macroscopic "spacetime" we experience, which appears smooth and continuous, might merely be an effective approximation or macroscopic emergence of this more fundamental, discrete or non-classical "relational ordinal structure" at specific scales and energies.

In this case, "spacetime" at the Planck scale (or some other more fundamental characteristic scale defined by *Relatedness Theory*) might exhibit discrete, non-continuous characteristics, perhaps even no longer possessing the dimensions and metrics familiar to us, but rather resembling a dynamically evolving "relational graph" or "event network" with complex connection topology. The exploration of this possibility is one of the potential directions for *Relatedness Theory* to engage in dialogue and mutual inspiration with cutting-edge physical theories such as quantum gravity in the future.

V. Conclusion: Spacetime—An Order, Dynamically Evolving and Emergent from the "Web of Relations" Under Specific CR Reference; its "Nature" Lies in Relation, Not in a "Container"

In summary, in the ultimate vision of *Relatedness Theory*, the "time" and "space" we experience and cognize are no longer the universe's presupposed, absolute background stage serving as a "container" for the existence and motion of all things. They are profoundly deconstructed and reshaped as: macroscopic structural attributes and modes of order emerging from the more fundamental, dynamic "Dependency Path (DPs)" network (i.e., "Relational Reality"), which is activated and woven from the "Primordial Vector (PVs)" potentiality of "Pure Being" via the "Global Bidirectional Self-Organization (BSO) mechanism" and the "Commonality Self-Activation Mechanism (CSAM)," under the reference, definition, and organization of specific (possibly unified, or possibly hierarchical) "Spatio-temporal Commonality Reference(s) (CR_Spatio-temporal)."

The nature of "space" lies in the "extensionality," "connectivity topology," and "geometric structure" patterns exhibited by the DPs network under the reference of a specific "Spatial CR."

The nature of "time" lies in the "changeability," "event sequentiality," and "dynamic rhythm" patterns exhibited by the DPs network and the "Relative Entity (REs)" and "Commonality Reference (CRs)" patterns manifested upon it, under the reference of a specific "Temporal CR."

Their essence in *Relatedness Theory* is:

Relational: Their meaning and characteristics entirely depend on the connections and interactions of the DPs network constituting their basis, and the referential framework of the CRs defining them.

Relative: They are not absolutely immutable but depend on the selected or encompassing CR_Spatio-temporal. Different CRs may define "effective spacetimes" with different characteristics (such as dimensions, curvature, rate of time passage).

Dynamic and Evolvable: Since the CRs defining them are also dynamically evolving along their "Existence-Evolution Axes (EEAs)" driven by the "Existence-Evolution Paradox (EEP)" and may undergo fundamental "displacement," "spacetime" structure itself is also dynamically evolving and even reconstructible.

Mutually Unified and Entangled: They ultimately all originate from the

same foundational "Relational Reality" (DPs network) and co-emerge under the reference of a unified (or hierarchically nested) CR_Spatio-temporal; their characteristics may be profoundly interdependent and inseparable.

The most fundamental concept of "time" in *Relatedness Theory* can be understood as the "Existence-Evolution Axis (EEA)" of a "Relatedness System (RS)," which records the contingency-laden and creative historical trajectory of a series of fundamental "displacements" of the RS's core CR (i.e., its "existence basis"). The seemingly smooth, continuous "flow of spacetime" we perceive daily may merely be a macroscopic approximation and cognitive construction resulting from the statistical averaging of an extremely complex dynamic evolution of the underlying "Relational Reality," within a very long "period of definitional power (T_CR)" (i.e., an EEA "plateau phase") of a specific, extremely stable core CR (such as our current universe's CR_Cosmos).

This generative explanation of the essence of spacetime, based on "primacy of relations" and "CR emergence," thoroughly deconstructs the traditional conception of spacetime as an absolute background or sole ontological cornerstone, reducing it to a dynamic phenomenon of order emerging from a deeper "Relational Reality" under a specific referential framework. It provides highly illuminating possibilities for us to understand, from a new and potentially more fundamental perspective, a series of major physical and philosophical questions, such as the origin and evolution of the cosmos, the nature of gravity (possibly directly related to the dynamic evolution of spacetime geometry), and even the possible behavior and quantum nature of spacetime under extreme conditions (such as inside black holes or in the early Big Bang). This is precisely one of the core contents that *Relatedness Theory*, in its attempt to construct a "formula of existence" or "tableau of Relational Reality" capable of uniformly explaining the generation, structure, and evolution of all things in the cosmos, needs to ultimately incorporate and profoundly explain.

Part Seven: The Relatedness Theory Tableau of Dreamscapes—The Dynamics of Reality Construction, Consciousness Boundaries, and Potentiality Interaction within "My" Inner Cosmos

Introduction—Scrutinizing the Labyrinth of Dreams Through the Prism of Relatedness Theory

I: The Universality and Mystery of Dreams:Common Experience and Enduring Puzzles

Dreams, like mysterious visitors accompanying the long river of life, quietly arrive during the sleep of humans and many other living beings. With their ever-changing scenes, at times absurd logic, and symbolic meanings that seem to conceal infinite mysteries, they have deeply attracted our curiosity and exploration since ancient times. From ancient civilizations regarding dreams as divine oracles or codes foretelling the future, to modern psychology attempting to interpret them as hidden paths to the depths of the subconscious, and further to neuroscience striving to reveal the precise intricate map of their physiological operations, dreams have always remained an enchanting enigma on the path of human self-understanding.

Whether they are the bizarre, seemingly entirely uncontrolled by our waking will, ordinary dreams, or the even more peculiar lucid dreams wherein one suddenly "knows one is dreaming" and may to some extent interact with the dream imagery, all pose profound and persistent challenges to our existing conceptions of the nature of consciousness, the boundaries of reality, the constitution of the self, and even the fundamental operational mode of the cosmos. Whence come the vivid sensory experiences in dreams? What unknown intrinsic "grammar" does their disjointed narrative structure and seemingly inverted or chaotic causality follow? Especially in lucid dreams, what precisely is the relationship between that "I" which is "aware" of its own dream state,

and that dream world which is experienced by "I" yet seems not entirely created by "I"? These lingering perplexities continuously call for a new theoretical framework capable of explaining these peculiar phenomena more fundamentally and systematically.

1.1 The Challenge to Traditional Epistemology: Limitations of Existing Theories

Faced with dreamscapes, especially the unique conscious phenomenon of lucid dreaming, traditional epistemology and philosophy of mind often encounter the limits of their theoretical explanatory power. For instance, entity dualisms that attempt to strictly separate matter and spirit find it difficult to clearly elucidate how an immaterial mind can experience such a vivid, even strongly physically textured, "sensory world" in dreams. Similarly, naive realism, which insists on the unique objective reality of the external world, cannot appropriately accommodate the ontological status of dreamscapes—these "internal realities" that do not conform to our commonly understood physical reality yet possess a strong subjective "sense of realness."

On the other hand, theories attempting to reduce consciousness to a mere epiphenomenon of specific physical brain processes, while having made progress in explaining certain physiological bases of dreaming, often prove inadequate when faced with the unique "sense of presence" of self-awareness in lucid dreams, the "meta-cognitive" ability (i.e., "knowing one is dreaming"), and the experiences reported by individuals of making "active choices" and (attempting to) "influence the dream" (the so-called "sense of control"). When trying to explain the bizarreness of dream content, the special operational state of the "self's" referential framework in dreams, and the subtle mechanisms of consciousness transitioning between waking, ordinary dreaming, and lucid dreaming states, these theories often need to introduce additional assumptions that are difficult to unify and self-consistently explain within their own frameworks.

1.2 The Unique Perspective of Relatedness Theory: A New Interpretation via Relation, Reference, and Self-Organization

Relatedness Theory (RT), with its unique "primacy of relations" ontology, and its core tenet of attributing the generation, structure, and evolution of all things in the cosmos to the hierarchical operation of "Commonality References (CRs)" (and their inherent "identifiability thresholds, ITs," which determine their "visibility" and "operational boundaries") and the permeating "Global Bidirectional Self-Organization (BSO) mechanism,"

offers a novel and profoundly potential theoretical framework for understanding the special conscious phenomenon of dreaming.

In the view of Relatedness Theory, a dreamscape is not some supernatural mystical experience or purely meaningless neural noise, but a special kind of "Endogenous Relational Reality." This means that the dream world, like the external world we experience when awake, is a constructed "reality," albeit with different "raw materials" and "organizational principles" for its construction. This "Endogenous Relational Reality" is primarily constructed when the "internal Dependency Paths (DPs_Internal)" (e.g., the intrinsic information network connecting memories, concepts, emotions, and other cognitive elements) within the cognitive subject—understood in Relatedness Theory as a unique "Relatedness System (RS_Self)," whose core is the "Central Self-Reference (CRO_Self)" that defines "my being me," along with its corresponding identifiability threshold IT_Self—are activated during sleep. These DPs_Internal are then "projected" and "organized" under one (or a series of) temporary "Dream Scene Commonality Reference(s) (CR_Dream_Scene)" (and its unique identification standard IT_Dream), which are primarily driven by dream content and the current cognitive state, all through the universal "Global Bidirectional Self-Organization" process.

1.3 Core Exploration of This Part: The Relatedness Theory Tableau of Dreamscapes

This part aims to employ the complete theoretical logic of Relatedness Theory to conduct a systematic, multi-layered philosophical elucidation of dreams (especially lucid dreams) as a complex conscious phenomenon:

The Relatedness Theory generative mechanism of ordinary dreamscapes as a form of "Endogenous Relational Reality," including the sources of their content (memory, emotion, and even deeper "Pure Nothingness" potentiality), their peculiar "non-linear causal" characteristics, and the special operational state of "I" as the core reference (CRO_Self and its IT_Self) therein.

The profound division between the "primordial experience" of an ordinary dreamscape and the dream we can "remember" after waking, caused by the "mismatch" of "identifiability thresholds (ITs)" across different cognitive states and the "veiling effect of Pure Nothingness," thereby revealing the constructed nature of "dream memory."

How the crucial "meta-cognition" in lucid dreams—that utterance of "I realize I am dreaming"—emerges within the referential and self-

organizational framework of Relatedness Theory, particularly the activation of higher-order cognitive functions (meta-cognitive SROs and their ITs) responsible for self-awareness within "my" core reference (CRO_Self and its IT_Self), and how the relevant identifiability thresholds (ITs) undergo dynamic transformation.

How, in the state of lucid dreaming, "I" as the core reference (CRO_Self and its IT_Self) and the still-operating dream generation mechanism (represented by CR_Dream_Scene and its IT_Dream) engage in a complex "mutual construction" via "Global Bidirectional Self-Organization (BSO)," and how the relevant identifiability thresholds (ITs) dynamically interplay therein, thus explaining why we experience dreams that are at times "controlled" and at other times "out of control," while strictly avoiding any teleological explanations.

Finally, from the Relatedness Theory interpretation of dreamscapes, we will reflect on its profound implications for our understanding of "I" as this "Relatedness System (RS_Self)," its cognitive mechanisms, the constructive nature of reality, the boundaries of consciousness, the "re-projection" essence of memory, and its creative interaction with "Pure Nothingness" potentiality as infinite possibility.

1.4 Preview of Core Relatedness Theory Concepts: Key Markers on the Navigational Chart

To better understand the subsequent elucidation, we will employ a series of core concepts from Relatedness Theory as key "markers" on our "navigational chart" for exploring the labyrinth of dreams. These concepts form the foundational framework for our analysis of dream phenomena and include, but are not limited to:

Cognitive Subject Relatedness System (RS_Self): Specifically refers to "I," this unique, multi-layered dynamic relational whole, as the center of cognition and experience.

Central Self-Reference (CRO_Self) and its Identifiability Threshold (IT_Self): The highest-order reference defining "my" subjectivity, identity, and experiential referential core; its "identifiability threshold (IT_Self)" stipulates the "gate" for information and patterns to be identified and integrated by "me."

Dream Scene Commonality Reference (CR_Dream_Scene) and its IT_Dream: Temporarily emergent references in dreams that govern the "projection" and organization of dream content; their "identifiability threshold (IT_Dream)" determines the "identifiable" standards for aspects like the vividness and coherence of dream content.

Endogenous Dependency Paths (DPs_Internal): Activated "relational" channels within RS_Self connecting cognitive elements such as memory, concepts, and emotions.
Dream Relative Entities (REs_Dream): Phenomenal patterns such as dream characters, scenes, objects, and events, constructed by DPs_Internal under the "projection" of CR_Dream_Scene (and its IT_Dream).
Global Bidirectional Self-Organization (BSO) mechanism: Originating from the "logical genesis" of the fundamental characteristics of the cosmos's most basic constituent units ("Primordial Vectors, PVs") and their interaction, it is the universal organizing principle and mutual construction dynamic permeating "Relational Reality" (including cognitive processes).
Cognitive Existence-Evolution Paradox (EEP_Cognitive_Dream): In dreamscapes (especially lucid dreams), the intrinsic tension between the "stability period" of maintaining a specific cognitive state (such as lucid meta-cognition) and its "maintenance cost," versus the "immersive pull" of the dream content's spontaneous "evolution," operating under the constraints of a finite "cognitive-bearing capacity."
Dynamic Interplay of ITs: Different Commonality References (CRs) and their respective "identifiability thresholds (ITs)," in BSO interaction, act like "relational valves," undergoing dynamic adjustment and mutual influence, collectively determining which information and patterns can be preferentially "identified" and "manifested."
Veiling Effect of Pure Nothingness: Any finite reference (CR) and its "identifiability threshold (IT)," while "manifesting" a portion of potentiality, necessarily "veils" a vaster domain of "Pure Nothingness" (i.e., unactivated and unorganized infinite potentiality) relative to that CR(IT). This is particularly crucial in the formation of dream memory.
By employing these conceptual tools, we expect to provide a new "navigational chart" for exploring this ancient and fascinating "inner cosmos" of dreamscapes, one that both maintains the theoretical depth of Relatedness Theory and enhances the lucidity of its elucidation.

II: The Substrate of Dream-Weaving—The Relatedness Theory Generative Mechanism of Ordinary Dreamscapes as "Endogenous Relational Reality"

2.1 The Sleep State of "I (RS_Self)" and the Opening of the "Inner Cosmos": The "Silence" of the Senses and the Awakening of the Inner "Theater"

When "I," this complex "Relatedness System" (RS_Self), enters a state of sleep, the "activation weight" or "signal flux" of its conventional informational channels with the external physical world—those "Dependency Paths (DPs_Sensory_Input)" that receive and process information through the senses—undergoes a significant reduction, regulated by the "Global Bidirectional Self-Organization (BSO) mechanism" at the physiological level. More precisely, compared to the waking state, the "identifiability thresholds (ITs_Sensory_Waking_State)" of its relevant perceptual "Specific Commonality References (SROs_Perceptual)" (e.g., cognitive units responsible for vision or audition)—that is, the "threshold" at which they can "notice" external stimuli—may be temporarily "substantially raised" by the BSO mechanism of RS_Self's overall physiological state, or their "priority level" for "projecting" external signals may be "selectively shut down." This "suppression" or "enhanced filtering" of external sensory input, like a theater slowly drawing its curtains before a performance, creates the conditions for the opening of a unique "inner cosmos" within RS_Self.

Simultaneously, the internal "Dependency Path" network (DPs_Internal) within "I" may become relatively more active. These internal "Dependency Paths" connect to the vast information reservoir accumulated by the individual during waking life—including various memories stored in the form of "Relative Entities (REs_Memory," i.e., "things" or "patterns" in our experience, such as recent events, distant childhood fragments, or strong emotional imprints), abstract conceptual networks organized by "conceptual reference units (SROs_Conceptual," and their respective identification standards ITs), and emotional states and their associative patterns "projected" by "emotional reference units (SROs_Emotional," and their ITs). During specific stages of sleep (e.g., what is commonly known as Rapid Eye Movement, REM, sleep), these internal "Dependency Paths" may be more easily "spontaneously activated" and "randomly reorganized" due to their own "residual

activation energy" within the BSO network, the "associative strength" between them, or the "diffuse influence" of certain physiological changes (such as fluctuations in neurotransmitter levels). They are like various props, sceneries, and script fragments rediscovered in a sleeping theater, collectively constituting the primary "raw material reservoir" for the construction of dream content.

2.2 The "Possibility Seepage" from "Cognitive Pure Nothingness (PN_Cognitive)" and the "Potentiality Source" of Dream Content: Whispers from Forgotten Corners

In Relatedness Theory, "Pure Nothingness (PN)" is not absolute emptiness; it is always relative to a specific "Commonality Reference (CR)" (i.e., the intrinsic "rules" or "frameworks" we use to identify and organize experience) and its "identifiability threshold (IT)." It represents that portion of "Pure Being" (the sole, all-encompassing potentiality background of the cosmos) potentiality that has not been activated, organized, and incorporated into its "visible" structure by the current CR (and its IT).

For "I" in the waking state, its dominant cognitive referential framework (e.g., CRs emphasizing logical consistency, reality testing, and the everyday language CRs we use, along with their respective ITs) will "veil" a vast amount of the "inherent necessary propensities (INPs)" (i.e., their unique "way or potentiality of existence and interaction") and potential "Dependency Path" connections possessed by "Primordial Vectors (PVs)" (i.e., the potentiality units carrying the most fundamental "relational propensities" in Relatedness Theory) that do not conform to its "commonality rules" or whose "signal strength" falls below its "identification threshold." This potentiality, "overlooked" by the "spotlight" of waking consciousness, constitutes the "cognitive Pure Nothingness" relative to the waking cognitive referential framework.

This "cognitive Pure Nothingness" is not a dead stillness; it may contain: deeply repressed emotional potentialities from waking life (such as primal fears, unfulfilled desires); "structural tensions" and "relational propensities" related to the individual's core "Existence-Evolution Paradox (EEP_Self," i.e., the fundamental tension within "I" between maintaining self-stability and seeking change) that have not been fully consciously realized and integrated; and even more primordial, pre-linguistic, non-logical interaction modes, possibly based on bodily instincts or deeper potentialities (if they can be explained by some broad referential background ARO in Relatedness Theory).

During sleep, because the "dominance" and "filtering strength" (i.e., certain "inhibitory thresholds" of their ITs) of those cognitive referential frameworks (and their ITs) that "hold sway" when awake may be temporarily "lowered" or "partially disabled" due to adjustments by the "Global Bidirectional Self-Organization (BSO)" mechanism, these potentialities originally in "cognitive Pure Nothingness" are more likely, through BSO's "random fluctuations" and a process that can be termed "possibility seepage," to "breach" the original "veiling boundary," gaining the opportunity to be "activated" and participate in the construction of dream content. This "possibility seepage" from "cognitive Pure Nothingness," like "whispers" from forgotten corners, is one of the important sources for dream content often exhibiting astonishing novelty, trans-conventional non-logicality, and a "primordial sense" rich in symbolic meaning and deep psychodynamic relevance.

2.3 The Emergence and Operational Characteristics of "Dream Scene Commonality Reference (CR_Dream_Scene)" (and its IT_Dream): The Dream's "Temporary Director" and its Unique "Filming Techniques"

During specific stages of sleep, the memories, concepts, and emotional elements activated from "my" internal "Dependency Paths (DPs_Internal)," along with the potentiality "seeping" from "cognitive Pure Nothingness (PN_Cognitive)," may, under the continuous action of the "Global Bidirectional Self-Organization (BSO) mechanism," give rise to one (or a rapidly succeeding series of) temporary "Dream Scene Commonality Reference(s) (CR_Dream_Scene)" through a process of "spontaneous condensation" at the cognitive level, analogous to the "Commonality Self-Activation Mechanism (CSAM)" (i.e., the mechanism in Relatedness Theory explaining how structure spontaneously "ignites" from potentiality). This process, metaphorically, might be like an activated memory core imbued with strong emotional coloring (e.g., a profound experience of fear or anxiety) acting as a "seed focus." Through BSO's "attraction" and "organization" effects, it rapidly "weaves" together other related memory fragments, conceptual associations, and symbolic potentialities from "cognitive Pure Nothingness," forming a "dream narrative prototype" or "scene atmosphere" centered around that emotional theme.

This CR_Dream_Scene, as the temporary "referential core" for the "projection" and organization of dream content, its "core rules" of operation and inherent "identifiability threshold (IT_Dream," which determines the vividness and (relative) coherence standards of the

dream) typically possess several distinct characteristics, like a "temporary director" with unique "filming techniques":

Highly contextualized and theme-driven: The dream's "director" often organizes its "projected" content around a specific (though possibly vague and fluid) dream "theme" (e.g., "being chased," "taking an exam," "flying") or core emotional tone. Its "rulebook" serves more the "dramatic unfolding" or "symbolic expression" of this immediate theme rather than pursuing logical rigor or realistic accuracy.

Preferential "projection right" of emotions: In this "inner theater" of dreams, the "projection influence" of cognitive units related to emotions (and their ITs for identifying emotional intensity) may be significantly amplified, causing dreams to be filled with intense emotional color, and the "meaning" and "logic" of dream events are often dominated and distorted by emotions.

"Low standards" for logical consistency: This "dream director" may set the "identifiability threshold (IT_Logical_Coherence_in_Dream)" for the "logical consistency" of its "projected" content very low, or the relevant logical reference units (and their ITs) may have their "right to speak" "substantially suppressed" by the BSO mechanism during sleep. This leads to dream content often violating our waking reality logic, being full of contradictions and leaps.

"Free editing" and "creative reorganization" of memory material: When "calling upon" and "organizing" memories as "old material," the "projection rules" of the relevant memory reference units (and their ITs for identifying memory accuracy) may become very "flexible," allowing for "fragmentation," "deformation," "symbolization," or "novel recombination" of memory elements, rather than strictly "reproducing" them according to waking-state spatiotemporal order and contextual associations. Its identification threshold for "memory accuracy" may be "overridden" by higher thresholds related to the dream's "narrative needs" or "emotional resonance."

"High standards" for sensory vividness and emotional authenticity: Although dream content may be illogical, its sensory experiences (visual, auditory, tactile, etc.) and emotional experiences are often very vivid and "real." This might be because this "dream director's" "identifiability threshold (IT_Dream)" has high "identification" requirements for the "vividness" and "intensity" of the "endogenous projection" from relevant perceptual units (such as cognitive modules responsible for vision or audition) and emotional units (and their ITs), thereby ensuring the dream's "immersiveness."

"Low threshold" access for subconscious "signals": This "dream director's" "identifiability threshold (IT_Dream)" may be set relatively low for those subconscious "Dependency Paths" or "irrational associations" originating from "cognitive Pure Nothingness" that are considered to have "weak signals" (below the identification threshold of waking cognitive references) in the waking state, making them more easily "projected" as vivid dream elements.

2.4 The "Holographic-like" Construction of "Dream Relative Entities (REs_Dream)" and the Enigma of "Non-linear Causality": The "Magical Realism" of the Inner World

Under the governance and "projection" of the "Dream Scene Commonality Reference (CR_Dream_Scene)" and its unique "identifiability threshold (IT_Dream)," the "endogenous Dependency Paths (DPs_Internal)" within "my" "Relatedness System (RS_Self)" (including activated cognitive elements such as memories, concepts, emotions, as well as potentiality from "cognitive Pure Nothingness") are rapidly "constructed" and "organized" by the "Global Bidirectional Self-Organization (BSO) mechanism" into a series of vivid yet often bizarre "Dream Relative Entities (REs_Dream)"—for example, dream characters, scenes, objects, and occurring events.

This "construction" process, to some extent, operates not like assembling physical building blocks, but more akin to an "internal holographic projection." Its "light source" (activation energy and information source) and "interference patterns" (connection and interaction modes of internal "Dependency Paths") primarily originate from within RS_Self, rather than being direct reflections of the external physical world. The "raw materials" for these dream "things" or "characters" (REs_Dream) are mainly derived from the BSO activation of "fragmented," "deformed," "symbolized," or "novelly recombined" existing experiences, memories, concepts, and emotions of the individual.

The common phenomenon of "non-linear causality" in dreams—for instance, a thought of "mine" seemingly instantaneously altering the entire scene; a trivial object suddenly possessing immense "power" completely inconsistent with its physical attributes; or the sequence of events possibly being jumbled or inverted—is not, in the view of Relatedness Theory, "causelessness" or "complete causal chaos." They are "relational patterns" exhibited between internal "Dependency Paths (DPs_Dream)" and "Relative Entities (REs_Dream)" within an "alternative Relational Reality" that is entirely different from the waking world,

governed and "projected" by a specific CR_Dream_Scene (and its unique "commonality rules" and IT_Dream), conforming to that dream referent's own (albeit possibly bizarre, symbolic, or emotion-driven) "intrinsic logic."

One can imagine that this "alternative Relational Reality" of the dream may follow a set of "operational laws" (stipulated by CR_Dream_Scene's "projection rules" and its IT_Dream) different from our waking physical world. For example, its "physical laws" might be set such that "intention can directly alter phenomena" (its identifiability threshold for this might be low); the "phenomenological effect" of dream objects might be determined more by their endowed "symbolic meaning" than by "physical attributes" (its identifiability threshold for "physical plausibility" might be "overridden" by a higher threshold for "symbolic meaning"). "Time" in dreams may also follow "emotional logic" or "associative leaps" more than the linear physical time we are accustomed to (its identifiability threshold for "linear temporal progression" might be set extremely low or temporarily "disabled"). This is the Relatedness Theory root of the "magical realism" of dreamscapes.

2.5 The "Immersive Experience" of "I (CRO_Self)" (and its IT_Self) in Ordinary Dreams and the "Retreat" of Meta-cognition: The "Engrossed" Audience in the Theater

In ordinary, non-lucid dreams, "my" "Central Self-Reference (CRO_Self," i.e., that highest-order referential framework defining "my being me") and its "identifiability threshold (IT_Self)," as the ultimate referential origin point and bestower of subjectivity for all experiences, its foundational operations (e.g., maintaining a first-person perspective and a basic "sense of self") continue to some extent—this is why a dream is still "my dream." However, the "activation weight" of those internal "Specific Cognitive Reference units (SROs_Metacognitive)" responsible for higher-order "meta-cognition" (i.e., the ability to reflect upon and scrutinize one's own cognitive state), "logical consistency checking," and "reality testing," along with their respective "activation thresholds (ITs_Metacognitive_Activation)," are "deeply suppressed" or "significantly lowered" under BSO regulation, or the "threshold" required for their activation is "set so high" that it is difficult to be "triggered" by the current dream experience.

Therefore, in ordinary dreams, "my" core reference (CRO_Self and its IT_Self) more passively "receives" and "immersively experiences" the often illogical and absurd dream "Relative Entities (REs_Dream)"

"projected" by the "Dream Scene Commonality Reference (CR_Dream_Scene" and its IT_Dream). At this time, the "screening identifiability thresholds (ITs_Reality_Testing/Logicality_Screening)" of "my" cognitive system for the "authenticity labels" and "logicality standards" of dream information may also be substantially lowered or temporarily "disabled." This usually prevents the dreamer from recognizing the absurdity of the dream (i.e., unable to "identify" its "inconsistency" with waking reality rules and their identification standards) and leads them to experience it as an (in-dream) "unquestionable present reality." This is like a completely "engrossed" audience member, temporarily forgetting they are in a theater.

In this state, even if dream content might touch upon certain deep-seated "cognitive-level Existence-Evolution Paradoxes (EEP_Cognitive_Dream)" within "my" "Relatedness System (RS_Self)" (e.g., unresolved daytime conflicts, repressed desires or fears), the tension of these paradoxes is often latently present or expressed in the form of "symbolic dream content (REs_Symbolic_Dream_Content)" "encoded" and "distorted" by CR_Dream_Scene's (and its IT_Dream's) "symbolic projection rules" (whose identifiability threshold might favor metaphorical associations), rather than being directly "identified" and "processed" by the waking meta-cognition of CRO_Self (and its IT_Self). The "Global Bidirectional Self-Organization (BSO)" dynamic mode in ordinary dreams, therefore, manifests more as a relatively "unidirectional" (from dream scene to "my" passive experience) or "weak-feedback" (where "my" experience has little ability to alter the dream scene) information flow and meaning construction process, dominated by CR_Dream_Scene's (and its IT_Dream's) "spontaneous projection logic" (possibly strongly influenced by subconscious "Primordial Vectors'" "inherent necessary propensities" and emotional reference units and their ITs).

III: The Gauze of Memory—The Relatedness Theory Divide Between the "Primordial Experience" of Dreamscapes and its Post-Waking "Re-Projection"

3.1 The Richness and Evanescence of "Raw Dream Relational Reality": The Instantaneous Torrent of the Dream Stream

In the vision of Relatedness Theory, when we sink into slumber, a unique "Endogenous Relational Reality" begins to unfold within the "inner cosmos" of "I," this "Relatedness System" (RS_Self). This "Relational Reality" is primarily governed and "projected" by a temporary "Dream Scene Commonality Reference (CR_Dream_Scene)" (which can be understood as the dream's temporary "director" or "organizational core") and its inherent "identifiability threshold (IT_Dream)" (i.e., the threshold for dream content to be "identified" and "manifested"). During specific stages of sleep, this dream's "temporary director" (CR_Dream_Scene) utilizes activated internal "Dependency Paths (DPs_Internal)" (i.e., our internal informational connection channels for memories, concepts, emotions, etc.) and may draw upon "possibility seepage" from "cognitive Pure Nothingness (PN_Cognitive)" (i.e., those potentialities unactivated or "veiled" relative to waking consciousness, especially the "inherent necessary propensities (INPs)" of "Primordial Vectors" originating from the deep subconscious). Together, these construct an experiential stream we term "Raw Dream Relational Reality."

These "primordial dream DPs and REs" (i.e., specific "events," "scenes," and "things" in the dream) "projected in real-time" during sleep may possess the following characteristics:

Extreme richness and fluidity: Due to fewer strict constraints from waking logic and external sensory input, the "projection" by the dream's "temporary director" (CR_Dream_Scene and its IT_Dream) can be extremely free and variable. This causes dream content (i.e., "primordial dream DPs/REs") to often exhibit a vast amount of information, rapid scene shifts, and highly unstable structures within short periods.

Uniqueness of organizational principles: The organizational principles of dreams may adhere more to emotional logic, symbolic associations, or the "projection rules" of some deep "archetypal reference" (a latent pattern influencing our behavior and cognition), rather than the linear spatiotemporal logic or physical causal laws we are accustomed to in the waking state. This means the connection modes of information (DPs) and

the manifestation patterns of "things" (REs) in dreams may be vastly different from our daytime experiences.
Specificity of "signal patterns": The "signal patterns" constituting "primordial dream DPs/REs" (e.g., specific combinations of neural activation in our brain, or characteristic frequencies, intensity distributions, etc., of information flow) might be "dynamically matched" (where "matching" here is a result of self-organizing processes, not purposeful optimization) to the dream's "temporary director" (CR_Dream_Scene) and its "decoding rules" and "identification threshold (IT_Dream)." However, these unique "signal patterns" may be "heterogeneous," "difficult to interpret," or even "unidentifiable" to our waking state's cognitive referential framework (and its identifiability thresholds, ITs).

3.2 The Fundamentality of "IT Mismatch across Cognitive States": The Chasm Between Dream "Language" and Waking "Language"
From the perspective of Relatedness Theory, the state of dreaming during sleep and our waking state are two fundamentally different cognitive states wherein the dominant "Commonality References (CRs)" (i.e., the intrinsic "rules" or "frameworks" we use to organize and understand experience) and their "identifiability thresholds (ITs)" (i.e., the "thresholds" or "standards" by which these "rules" or "frameworks" can "identify" and "process" information) within "I," this "Relatedness System (RS_Self)," have undergone significant "displacement." This fundamental difference in "referential frameworks" directly leads to a profound "IT Mismatch across Cognitive States":
Fundamental difference in referential frameworks:
During sleep and dreaming, the construction of our "internal reality" is dominated by that temporary "Dream Scene Commonality Reference (CR_Dream_Scene" and its IT_Dream), which is primarily driven by internal information (DPs) and deep subconscious propensities (PVs' INPs). Its "core rules" and "projection methods," as previously described, may favor direct emotional expression, symbolic associative leaps, and non-logical narrative progression. Its "identifiability threshold (IT_Dream)" is correspondingly more "tolerant" or "sensitive" to these characteristics.
In the waking state, "my" cognition is primarily governed by its core "Central Self-Reference (CRO_Self," i.e., the highest-order reference defining "my being me") and its identification standards (IT_Self), as well as a series of relatively stable and mature cognitive referential

frameworks (such as logical rules, reality testing standards, linguistic symbol systems, and their respective ITs). These waking referential frameworks (and their ITs) place greater emphasis on logical consistency, correspondence with external sensory information flows, and the coherence of socially shared meaning. Their "tolerance" for "illogicality," "unreality," and "semantic ambiguity" is usually lower (i.e., their screening standards are stricter).

The "generation gap" of "Identifiability Thresholds (ITs)":

The "identification threshold (IT_Dream)" set by the dream's "temporary director" (CR_Dream_Scene) may set a lower "identification threshold" for those internal information activation patterns or potentiality "seepages" that appear as "weak signals," "fuzzy patterns," or "illogical" from our waking cognitive reference, allowing them to be "projected" as vivid dream "things" (REs).

However, the "identifiability threshold" of the memory encoding and retrieval mechanisms (which can be seen as specific cognitive SROs and their ITs) relied upon by our waking "core self (CRO_Self" and its IT_Self) is set according to the "standards" of the waking cognitive referential framework (and its ITs). Those "primordial dream information and patterns" (DPs/REs) that can be experienced by "passing" IT_Dream during the dream, if their "signal characteristics" or "organizational patterns" are incompatible with the "encoding templates" or "retrieval probes" of our waking memory mechanism, or if their "intensity" fails to "breach" the possibly higher "identification threshold" of waking memory, will find it difficult to be effectively "transcribed" into stable "memory traces" accessible to waking consciousness.

This "referential framework mismatch" and "IT generation gap," caused by the fundamental difference in the "referential frameworks" and "identification thresholds" (CRs and their ITs) that govern our experiential construction in different cognitive states, is the core reason why most "primordial dream experiences" are "lost" like morning dew upon our awakening.

3.3 The "Unconnectability" and "Pure Nothingness Veiling" of Most "Primordial Dream DPs/REs": The Essence of Forgetting

Lack of "Memory Connectability":

Relatedness Theory posits that the formation and retrieval of memory depend on the existence of effective "connectability" at the level of "core rules" and "identification standards (ITs)" between our current cognitive referential framework (and its identifiability thresholds, ITs) and those

information patterns being encoded or attempted to be retrieved. This means there need to be mutually compatible information channels capable of stably "writing" experiential information into the memory system and being "identified" and "addressed" by subsequent cognitive referential frameworks (and their ITs).

Due to the aforementioned "IT mismatch across cognitive states," the "relational grammar," "signal patterns," and "meaning encoding methods" of the vast majority of information and patterns in "primordial dreams" may be severely incompatible with the "interface standards" of the memory encoding mechanisms (and their ITs) governed by our waking "core self (CRO_Self" and its IT_Self). They are like information written in a "bizarre dream dialect," difficult to be translated and effectively stored by the "universal language decoder" we use when awake.

Therefore, these "primordial dream informations," due to their incompatibility with the "identification standards," "categories of understanding," and "memory encoding rules" (and their ITs) of the waking "core self" (and its IT_Self), become "veiled by Pure Nothingness" relative to its waking cognitive framework after the individual awakens. "Pure Nothingness" here does not refer to absolute emptiness, but to that infinite potentiality background which cannot be "illuminated" or "understood" by the current cognitive framework.

The Relatedness Theory state of "disconnected" experiences:

This information and these patterns, which indeed "occurred" during sleep (i.e., were "projected" and experienced as "Raw Dream Relational Reality" by the dream's "temporary director" CR_Dream_Scene and its IT_Dream), upon waking, lack effective "connectability" with the waking cognitive referential framework (and its ITs), and thus cannot be "accessed" and "recalled" by "my" waking consciousness.

They have not utterly "vanished" into "absolute nothingness" (because Relatedness Theory posits that "Pure Being"—the potentiality background encompassing all possibilities—is the sole ontological cornerstone). More accurately, their "informational patterns" and "relational potentialities" may "revert" to a state akin to "potentiality unactivated by a specific referential framework" or "diffuse informational activity unidentifiable and unorganizable by the current referential framework," relative to the current waking "core self" (and its IT_Self). They become part of "my" "cognitive Pure Nothingness." Although they might continue to "exist" and operate in some way at the subconscious level (e.g., by influencing the organization of subsequent dreams, or by

exerting certain imperceptible "Global Bidirectional Self-Organization" BSO influences on waking emotions and intuitions), they can no longer be "captured" by the waking "I" in the form of clear memories.

3.4 The Relatedness Theory Constructivist Essence of "Dream Memory Relative Entities (RE_Dream_Memory)": Recall as "Re-Creation" "Survival" of "connectable" fragments and screening by "signal strength/resonance degree":

Those dream fragments we can "remember" after waking are typically those among the "primordial dream information and patterns" experienced during sleep whose certain characteristics happen to possess higher "signal strength" (e.g., dream events accompanied by strong emotions might, under the "projection" of emotional reference units and their ITs, possess extremely high "activation weight" and "identifiability") or whose "patterns" exhibit a certain "commonality resonance" or "pattern commensurability" with certain cognitive reference units (and their identification standards ITs, such as memory modules strongly associated with certain waking experiences, or simple narrative structures easily, albeit vaguely, "captured" by waking logic) of the waking "core self" (and its IT_Self).

These "surviving" fragments are "retrieved" only because their characteristics can, to some extent, "breach" the "identifiability threshold" set by the waking cognitive referential framework (and its ITs) during "memory retrieval and re-projection."

The "constructive re-projection" by the waking "core self (CRO_Self" and its IT_Self):

Even these "remembered" parts are by no means "verbatim copies" of the "Raw Dream Relational Reality." When they are recalled and (especially) narrated (e.g., "translated" and "expressed" using the linguistic referential framework and its ITs that we use when awake), they are necessarily actively "edited" (via BSO's self-organizing adjustments), "rationalized" (via "corrections" from logical reference units and their ITs), "meaning-reconstructed" (based on "re-interpretations" from the waking referential framework and its ITs), and "narratively organized" (via "orchestration" by our inner "self-story" referential framework and its IT) by the waking "core self" (and its IT_Self).

The purpose of this process is to make these dream fragments, originating from a "heterogeneous referential framework" (i.e., the dream's CR_Dream_Scene and its IT_Dream), conform as much as possible to the "coherence" and "understandability" requirements of our

waking state's logical referential framework (and its ITs for identifying logical consistency) and "self-narrative" referential framework (and its IT for identifying narrative coherence).
Therefore, the "dream memory" we "possess" (as a "Relative Entity," RE_Dream_Memory, manifested in the waking state) is a "constructive re-projection" based on the waking cognitive referential framework (and its ITs). It is more like a "story version" "reshaped" by the cognitive filter of the current "I," rather than an "objective recording" of the dream experience.

3.5 The Inevitability of Dream Memory Fragmentation and "Distortion": Why Recall is Always a Hazy Ballad

Based on Relatedness Theory's understanding of the profound divide between "Raw Dream Relational Reality" and "dream memory" due to "IT mismatch across cognitive states," "Pure Nothingness veiling," and "constructive re-projection," we can fundamentally explain why dream recall typically exhibits the following characteristics:
Fragmented: Because most "primordial dream" information and patterns are "veiled by Pure Nothingness" due to their "unconnectability" with the waking cognitive referential framework (and its ITs), only a few fragments with sufficiently high "signal strength" or relatively strong "pattern commensurability" can "survive" and be "re-projected." This naturally leads to recalled dreams often being incoherent, disjointed, with only some scattered scenes or emotions remaining.
Evanescent: Those "dream traces" that barely "breach" the waking memory's "identification threshold (ITs)" may themselves be relatively "faint" or their "connection channels (DPs)" with the waking cognitive network insufficiently robust. They are easily "interfered" with by subsequent waking experiences or "optimized away" by the "Global Bidirectional Self-Organization (BSO)" mechanism during information integration (if they conflict with stronger reality information flows), thus rapidly fading.
Mutable and Distorted: Each recollection ("re-projection") of a dream may be influenced by the state of the "core self (CRO_Self" and its IT_Self) at that moment, its emotional references, and newly experienced information flows, thereby leading to varying degrees of "re-editing" and "meaning reconstruction" of the "primordial dream traces" (if they still exist). This causes dream memory to potentially change in content or even become "distorted" after multiple recollections, gradually diverging from the initial (hypothetical) "primordial experience." What we recall is

more often our "memory of the memory of the dream," rather than the dream itself.

Difficult to fully explain with waking logic: Because the "dream memory" we recall is the result of the waking "core self (and its IT_Self)" attempting to "understand" and "organize," using its own logical referential framework (and its ITs), those experiential fragments originating from a fundamentally different dream referential framework (CR_Dream_Scene and its IT_Dream, which has its "alternative intrinsic logic"), this "cross-referential-framework translation" is often imperfect. It necessarily leaves many "rupture points" or "fuzzy areas" that are "difficult to understand," "unreasonable," or "of unclear meaning" from the perspective of waking logic.

In summary, this subsection, by introducing core Relatedness Theory mechanisms such as "memory connectability," "cross-state screening" by identifiability thresholds (ITs), and the "veiling effect of Pure Nothingness," profoundly reveals the vast chasm between the dreams we "actually experience" in real-time during sleep and the dreams we can "remember." It reframes dream memory from a simple "information retrieval" process into a complex, "re-projection" process constrained by referential frameworks (CRs) and identification standards (ITs), and replete with constructivity. This understanding not only provides a solid theoretical basis for elucidating many characteristics of dream memory but also paves the way for our subsequent discussion of the uniqueness of lucid dreams—especially the subtle relationship that may exist between the "immediacy" of dream experience and the "connectability" of subsequent memory.

IV: The Beacon of Lucidity—The Relatedness Theory Emergent Mechanism of "I Realize I Am Dreaming" and the Dynamic Transformation of "Identifiability Thresholds (ITs)"

4.1 The "Beacon" Triggering "Lucidity": Those "Heterogeneous Informations" and "Light of Introspection" That Break Dream Immersion

In ordinary dreams, "my" "Central Self-Reference (CRO_Self," i.e., the highest-order referential framework defining "my being me") and its "identifiability threshold (IT_Self)" usually undergo an "immersive," uncritically examined experience of its "inner cosmos'" "projection." However, under certain specific conditions, this "dream self-consistency," maintained by the "temporary reference of the dream scene (CR_Dream_Scene," which can be understood as the dream's "temporary director") and its identification standards (IT_Dream), is broken. At this point, the activation of certain special internal "Dependency Paths (DPs," i.e., connection channels for information and influence) or specific cognitive reference units (SROs," i.e., intrinsic "rule modules" responsible for specific cognitive functions), like a beacon ignited in the slumbering cognitive dark night, provides an opportunity for "lucidity" to arrive. These "catalysts" primarily include:

Accumulation of extreme "incoherence" or "absurdity" in dream content, triggering a "conflict alarm":

Although the "identification threshold" requirement for logical consistency by the dream's "temporary director" (CR_Dream_Scene and its IT_Dream) is usually low, if the dream "things" or "events" (REs_Dream) it "projects"—for example, a talking animal, a physically impossible flight, the unexpected appearance of a deceased relative, or an abrupt scene shift—generate an extremely strong and significant "conflict" or "mismatch" with the memory information (REs_Memory) or core beliefs (CRs_Belief) stored within "my" "Relatedness System (RS_Self)" concerning "waking world operational rules" (which can be seen as a relatively stable cognitive reference CR_Waking_Reality), this "conflict" itself can be considered the activation of a "heterogeneous information flow (DP_Anomalous_Information)."

The "intensity" of this "conflict signal (RE_Conflict_Signal)" or its "intolerability" relative to certain identification standards (ITs) related to the sense of reality within "my" core reference (CRO_Self) might, through the cumulative effect of the "Global Bidirectional Self-Organization

(BSO)" process, ultimately "breach" a certain "identification trigger threshold (IT_Reality_Check_Trigger)" associated with the "reality testing" cognitive unit (SRO_Reality_Check, an important meta-cognitive module within CRO_Self). This "threshold," which might be set high in ordinary dreams, could be "dynamically lowered" or "forcibly breached" when conflict signals continuously intensify, like a cognitive-level "alarm system" being triggered.

"Permeation" of residual "daytime thinking patterns" or "intention to seek lucidity":

Sometimes, a strong intention before falling asleep to "remain lucid in my dream (DPs_Intention_for_Lucidity)"—which itself might, via the BSO mechanism, temporarily "strengthen" the "activation potential" of relevant meta-cognitive units (SROs_Metacognitive) and their identification standards (ITs) or lower their "activation threshold"—or the "inertial activation" of certain cognitive patterns (SROs_Cognitive, e.g., the critical thinking SRO of a scientist or philosopher) highly active during wakefulness, might "permeate" into the "Relational Reality" of the dream state in some way.

The operation of these "residual" waking thought patterns or intentions might "interfere" with or "question" the "non-logical projection" of the dream's "temporary director" (CR_Dream_Scene and its IT_Dream) (e.g., a sudden "fleeting thought" in the dream: "This is illogical!"), thereby also potentially activating the "reality testing" cognitive unit (SRO_Reality_Check) and its "trigger threshold (IT_Reality_Check_Trigger)."

"Resonant activation" of specific "dream cues" and pre-set "lucidity trigger mechanisms":

For experienced lucid dreamers, they may, through long-term BSO training (e.g., repeatedly performing "reality testing" exercises when awake—"Am I dreaming now?"—and establishing strong associative internal "Dependency Paths, DPs" between this and certain common "dream characteristics," such as "hand deformation," "blurry text," "recurrent specific scenes or characters," "anomalies in physical laws"), "cultivate" within their "Relatedness System (RS_Self)" certain "lucidity trigger reference units (SROs_Lucidity_Triggers)" that are highly sensitive (i.e., their relevant identification thresholds ITs_Dream_Sign_Recognition are set low) to these specific "dream cues (REs_Dream_Signs)."

These "lucidity trigger reference units" (and their ITs), like pre-set "alarms," once they "identify" (i.e., their ITs are "thresholded") matching

"dream cues" (whose "signal strength" and "pattern characteristics" must be sufficient to activate these SROs' ITs) in the dream, may directly and rapidly "ignite" the lucid state (this could be a swift, BSO-process akin to a "cognitive critical transition"), activating higher-level meta-cognitive functions.

4.2 The Relatedness Theory Core Mechanism of the "Moment of Lucidity": Dynamic Transformation of "Identifiability Thresholds (ITs)" and the "Disarming" of the "Alarm"

The occurrence of the "Moment of Lucidity," in the view of Relatedness Theory, signifies a crucial, dynamic "ITs transformation" within "my" "Central Self-Reference (CRO_Self)" and its identification standards (IT_Self), among its cognitive referential frameworks (CRs) and their respective "identifiability thresholds (ITs)." This transformation can be figuratively understood as a kind of "disarming of a referential system alarm"—where "disarming" here does not mean the alarm system fails, but rather that the "cognitive alarm" triggered by dream bizarreness is successfully "confirmed" and "processed" (by realizing "this is a dream"), thereby allowing the system to enter a new, more "lucid" state of operation.

"Critical activation" of "meta-cognitive functions" within the "core self (CRO_Self and its IT_Self)":

When the "signal strength" or "degree of conflict/incoherence" of any one (or more) of the aforementioned "lucidity-triggering" information flows (DPs) or cognitive units (SROs) reaches a critical level, they will, via the "Global Bidirectional Self-Organization (BSO)" mechanism, centrally and intensely "activate" or "awaken" those "meta-cognitive reference units (SROs_MetaCognitive)" within "my" core reference (CRO_Self and its IT_Self) that are usually in a state of "deep suppression" during ordinary dreams. These units are responsible for "secondary reference" (i.e., reflective scrutiny) of "my" own cognitive states, processes, and content.

This "critical activation" process may manifest as the "activation identifiability threshold (IT_Activation_for_Metacognitive_SROs)" of these meta-cognitive units themselves being "breached" by the relevant triggering information flow (whose "signal strength" and "pattern" happen to match the requirements of that IT).

The "identifiability threshold (IT_Lucidity_Threshold)" for the "meta-information" of "whether the current experience is a dream" is "penetrated":

Relatedness Theory posits that within our cognitive system, there exists a

(possibly latent, dynamic) "meta-information identifiability threshold (IT_Lucidity_Threshold)" concerning the "authenticity status of current experience." In ordinary dreams, this "threshold" might be very high, or rather, the "sensitivity" of the "reality testing" unit (SRO_Reality_Test and its IT_Reality_Test) responsible for processing this meta-information to the "unreality signals" of dream experience is extremely low (i.e., its relevant "dream unreality detection IT" is too high, or its "projection rules" are "suppressed" by the IT_Dream of the dream's "temporary director" CR_Dream_Scene), allowing dream content to "pass screening" and be experienced as "real."

But at the "moment of lucidity," due to the strong action of the aforementioned "triggering information flows," this crucial "identifiability threshold (IT_Lucidity_Threshold)" is (possibly instantaneously, via BSO's non-linear effects) "dynamically lowered" or "penetrated." This means that previously ignored, faint "unreality cues" can now "pass the threshold" and be "identified."

The "reality testing" mechanism (SRO_Reality_Test and its IT_Reality_Test) is "awakened" and operates with higher "resolution," identifying the "fundamental inconsistency" between the dream and waking reality rules:

Once meta-cognitive functions are activated, their core member—the "reality testing reference unit (SRO_Reality_Test)" and its inherent, possibly stricter (during wakefulness) "reality testing accuracy IT" and "logical consistency standard IT"—begins to "scrutinize" and "evaluate" the dream "things (REs_Dream)" and events (DPs_Dream) currently "projected" by the dream's "temporary director (CR_Dream_Scene and its IT_Dream)" using a "referential standard" and "projection rules" closer to those of the waking state.

This "reality testing" mechanism uses its retrieved memories of "waking world operational rules (CR_Waking_Reality," e.g., "people cannot fly," "objects have fixed forms," "time flows linearly," these rules and their associated identification standards ITs having been learned and solidified through BSO in long-term waking experience) as "referential templates" to conduct "pattern matching" (via BSO process) and "conflict detection" (by comparing whether relevant ITs are met) with the current dream experience.

Due to the bizarreness of dreams, this "matching" almost inevitably produces a large number of "inconsistency signals" or "referential system conflicts" (e.g., "In the waking world, I cannot move objects with my mind, its 'physical possibility' identifiability threshold is extremely high;

but in this dream experience I 'achieved' it, its 'phenomenological realness' identifiability threshold might be very high. A conflict arises between these two identification standards."). The activation of the "reality testing" mechanism allows these "inconsistencies" to be clearly "identified," their "signal strength" sufficient to "breach" the "identifiability thresholds" that might have previously "suppressed" them.

4.3 The Emergence and Stabilization of the "Meta-cognitive Relative Entity Tag (RE_Metacognitive_Lucidity_Tag)": The Establishment of "I Know I Am Dreaming"

Accumulation of "inconsistency signals" breaches the "lucidity confirmation" identifiability threshold:

When the "signal strength" of the "fundamental inconsistencies" between dream experience and waking reality rules, "identified" by the "reality testing" mechanism (SRO_Reality_Test and its IT_Reality_Test), accumulates to a certain degree, or when the "intolerability" of this "conflict" (relative to certain reference units and their ITs within "my" core reference CRO_Self that pursue cognitive coordination) exceeds a certain "meta-cognitive decision identifiability threshold (IT_Metacognitive_Decision_Threshold)" or "lucidity state confirmation identifiability threshold (IT_Lucidity_Confirmation," which can be seen as a specific manifestation of IT_Lucidity_Threshold) that is dynamically activated or lowered at the "moment of lucidity," then "my" cognitive system undergoes a crucial "state determination."

The "core self (CRO_Self and its IT_Self)," via meta-cognitive functions, "projects" the cognitive tag "I know I am dreaming":

The result of this "state determination" is the generation and "stable manifestation," at the highest referential level of "my" "Central Self-Reference (CRO_Self)" and its identification standards (IT_Self), through its activated meta-cognitive units (SROs_MetaCognitive) and their ITs' "projection rules," of a new, crucial "Meta-cognitive Relative Entity Tag (RE_Metacognitive_Lucidity_Tag)"—namely, the judgment or belief "I know I am dreaming now."

The emergence of this unique cognitive tag (RE_Metacognitive_Lucidity_Tag), like a clear banner of "self-awareness" raised on the chaotic battlefield of the dreamscape, "detaches" "me" from "uncritical identification" with dream content, endowing "me" with a new identity as a (relative) "dream observer" and (potential) "dream interactor."

The stabilization of this cognitive tag marks the official commencement

of the lucid dream state:
The maintenance of the "lucid dream state" depends on the "manifestation intensity" of this "I know I am dreaming" cognitive tag continuously remaining above the relevant "lucid awareness maintenance identifiability threshold (IT_Lucid_Awareness_Maintenance)" within "my" core reference (CRO_Self and its IT_Self), and on its "certainty" being able to resist the "immersive pull" and possible "logical interference" from the vivid dream "things (REs_Dream)" "projected" by the dream's "temporary director (CR_Dream_Scene and its IT_Dream)." If the "signal strength" of this cognitive tag weakens and falls below the relevant identifiability threshold (e.g., due to a decrease in the identifiability threshold for attention, IT_Focus_on_Lucidity, or the breaching of the identifiability threshold for emotion, IT_Emotional_Overwhelm), the lucid state may destabilize, reverting to an ordinary dream.

4.4 Potential Enhancement of "Memory Connectability" by Lucidity: Can "My" Notes in a Dream be "Deciphered" After Waking?
Whether and how the state of lucidity (i.e., the activation of meta-cognitive units SROs_MetaCognitive and their ITs) affects the "memory connectability" of dream experiences when subsequently recalled is a Relatedness Theory question worthy of in-depth exploration.
Enhancing "encoding compatibility" by "tagging," "organizing," or "logicizing" experiences within the dream:
In a lucid dream, because the meta-cognitive functions of "my" "Central Self-Reference (CRO_Self)" and its identification standards (IT_Self) are activated, the individual may, "in the moment" of the dream occurring, consciously or semi-consciously perform some degree of "cognitive tagging" (e.g., "This is an interesting dream symbol," "I am flying now, this is peculiar but fits dream logic"), "structural organization" (e.g., attempting to find clues or meaningful associations for events in the dream, even if such associations are dream-like), or "preliminary logicization" (e.g., trying to understand why the dream presents thus, or offering some "rationalized explanation" for its absurdity) of the dream "things (REs_Dream)" being experienced.
These internal information flows (DPs_Concurrent_Encoding_and_Organization) of "real-time encoding and organization," engaged in during the dream with lucid awareness, might cause these "processed" dream fragments, in their "informational patterns" and "relational structures," to become, to some extent, closer to the "encoding preferences" and "identification standards" of the

waking "core self's (CRO_Self" and its IT_Self's) cognitive referential framework (and its ITs, especially memory encoding units SROs and their ITs_Encoding_Compatibility for identifying encoding compatibility, and language reference units SROs and their ITs_Linguistic_Labeling for identifying linguistic labels).

In other words, lucid meta-cognitive participation may, "in real-time" as the dream experience occurs, enhance the "commonality resonance" or "encoding compatibility" between these experiential fragments and the waking cognitive referential framework (and its ITs). Their relevant identifiability thresholds (e.g., IT_Salience_for_Memory_Encoding for memory encoding significance, or IT_Meaningfulness_for_CRO_Self for meaningfulness to the "core self") might thereby be more easily "thresholded."

Making certain fragments of lucid dreams easier to "connect" and "re-project" after waking:

Because a round of "information processing" and "meaning tagging" (albeit possibly preliminary and imperfect) conforming to some "taste" of the waking cognitive referential framework (and its ITs) has already been performed during the dream, these "specially attended to" dream fragments, upon the individual waking, their "memory traces" (if formed) may be more easily "identified" and "connected" by the waking "core self's (CRO_Self" and its IT_Self's) memory retrieval mechanisms (SROs_Memory_Retrieval and their ITs_Memory_Retrieval_Cues for identifying retrieval cues).

They might more easily "breach" the typically higher "identifiability threshold (ITs_Retrieval_from_Dream_State)" that waking memory sets for retrieving "heterogeneous dream information," thereby being "re-projected" into waking consciousness and organized by language reference units (SROs_Language and their ITs) into narratable "lucid dream recall (RE_Lucid_Dream_Recall)."

This perhaps explains why some lucid dream memories, compared to the hazy memories of most ordinary dreams, appear clearer, more coherent, and are more easily endowed with "meaning" (although this "meaning" is still a "reconstruction" by the waking "core self" CRO_Self and its IT_Self).

However, it must be emphasized that even lucid dream memories still cannot completely escape the "gauze of memory" effect discussed in our third sub-part. Between their "primordial experience" and "waking re-projection," differences and "information loss" will still exist due to "IT mismatch across cognitive states" and the "constructive nature" of the

waking cognitive referential framework (and its ITs). But the occurrence of lucidity may indeed leave some "navigational beacons" from this special "inner cosmic journey" that are easier to "retrieve," like faint lights on a night-navigating ship, indicating the storms once weathered.

V: The Co-Dance of the Inner Cosmos—The Relatedness Theory Mutual Construction of "I" and "Dream" in Lucid Dreams, the Dynamics of Identifiability Thresholds (ITs), and the Analysis of the "Sense of Control"

5.1 Dual Reference and Intrinsic "Cognitive Existence-Evolution Paradox" in Lucid Dreams: A "Tale of Two Cities" of Consciousness

Once that crucial "Meta-cognitive Relative Entity Tag (RE_Metacognitive_Lucidity_Tag," i.e., a clear cognitive "thing" of "I know I am dreaming") stably manifests under the reference of "my" "Central Self-Reference (CRO_Self," i.e., the highest-order referential framework defining "my being me") and its corresponding "identifiability threshold (IT_Self)," "my" internal cognitive dynamics enter a highly special, complex state, as if enacting a "Tale of Two Cities." At this point, at least two primary "Commonality References (CRs," i.e., intrinsic "rules" or "frameworks" for organizing experience) and their respective "identifiability thresholds (ITs)" coexist and mutually influence each other:

The continuous "projection" by the "temporary reference of the dream scene (CR_Dream_Scene)" and its "identification standards (IT_Dream)": This "dream director" (CR_Dream_Scene), temporarily emergent in the dream and primarily driven by internal "Dependency Paths (DPs_Internal," i.e., connections of information such as memories, emotions, concepts) and "possibility seepage" from "cognitive Pure Nothingness (PN_Cognitive," i.e., potentiality not "illuminated" by current consciousness, especially "inherent necessary propensities, INPs" of "Primordial Vectors" from the deep subconscious), is still actively "projecting" vivid yet often bizarre dream "things (REs_Dream)" and events (DPs_Dream) according to its own (possibly non-logical, symbolic, emotion-driven) "core rules" and "projection methods." Its "identification standards (IT_Dream)" may still have high "identifiability" requirements for sensory vividness and emotional intensity, while the "identifiability threshold" for logical coherence is relatively low.

The "awakened reference" of the "Central Self-Reference (CRO_Self)" and its "identification standards (IT_Self and activated meta-cognitive functions)": Simultaneously, due to the emergence of the "I know I am dreaming" cognitive tag, those cognitive units (SROs," i.e., specific "rule modules") within "my" core reference (CRO_Self and its IT_Self) related

to meta-cognition (cognition of one's own cognitive activities), reality testing, and logical analysis, along with their respective "identifiability thresholds (ITs)," are activated. It begins to attempt to "scrutinize," "understand," and "evaluate" this unfolding dream world using a referential framework closer to "waking state cognitive rules (CRs_Waking_Cognitive_CRs)" and their "identification standards (ITs)." At this time, this core reference maintains a high "identifiability" for the "unreality marker" of the dream and attempts to "calibrate" the "projection" and cognition of dream "things" using more "rational" identification standards.

This coexistence and interaction of at least two primary referential systems (which may have significant differences or even conflicts in their "projection rules" and "identifiability threshold settings") within the same "I" necessarily generates a special "Cognitive-level Existence-Evolution Paradox (EEP_Cognitive_Dream_State)." The core tension of this "paradox" lies in:

The "evolutionary tension" of the dream: On the one hand, there is the "creative (or chaotic) evolutionary rate" of the dream's "temporary director" (CR_Dream_Scene and its IT_Dream) continuously generating novel, variable, and even uncontrolled dream "things" and events. This constitutes a continuous "perturbation" and "information input pressure" on the waking cognitive stability of the "core self (CRO_Self and its IT_Self)." On the other hand, there is the "cognitive effort" of "my" core reference (and its activated meta-cognitive functions and identification standards) attempting to understand, analyze, and even (in the "mutual construction" sense discussed later) "influence" the dream's direction. This effort itself consumes cognitive resources and may generate new internal informational conflicts.

The "stability period" and "maintenance cost" of "lucid cognition": "Lucidity" itself (as a "meta-cognitive reference" maintained by a specific operational mode of the "core self"—i.e., the stable manifestation of the "I know I am dreaming" cognitive tag) has a finite "period of definitional power (T_CR_Lucidity," i.e., the characteristic timescale for which it can maintain effective operation). It requires continuous "meta-cognitive resources" (a cognitive-level "energy" or "information input") to maintain the "thresholded" (i.e., clearly identifiable) state of this "I know I am dreaming" tag and to resist the "immersive pull (v_Immersion)" from the "projection" of the dream's "temporary director (CR_Dream_Scene and its IT_Dream)." This maintenance effort constitutes a generalized "maintenance cost (h(T)_Lucidity)." If the dream content is too intense, or

the cognitive load of maintaining lucidity is too high, this "maintenance cost" may rise sharply.

The constraint of "cognitive-bearing capacity": "I," this "Relatedness System (RS_Self)," under the special physiological and cognitive state of dreaming, its intrinsic "Global Bidirectional Self-Organization (BSO) mechanism" (the fundamental operational mode of mutual influence and co-evolution of system parts) has a finite overall "cognitive-bearing capacity (C_max_Cognitive_in_Dream," i.e., the limit of the system's processing capacity) for effectively integrating the operations of these conflicting referential frameworks (and their ITs), processing information, and maintaining lucid awareness and possible dream "intervention" intentions.

The continuous operation of this "cognitive Existence-Evolution Paradox (EEP_Cognitive_Dream_State)" is the fundamental dynamic root of why the lucid dream state is dynamically unstable and why the dreamer's experience is complex and varied.

5.2 The "Intention" of "I": An "Information Propensity" Flowing in the "Global Bidirectional Self-Organization (BSO)" Network

When the lucid "I" (i.e., the "Central Self-Reference" CRO_Self with its meta-cognitive functions activated) generates an "intention (RE_Intention)" in the dream to change dream content or to interact specifically with dream characters (REs_Dream_Character), this "intention," in the view of Relatedness Theory, is not a "first cause" possessing absolute "free will" and existing externally to the relational network.

Instead, this "intention" itself is a transient "Relative Entity (RE," i.e., an identifiable pattern) emerging from the complex "Dependency Path (DPs_Internal)" network within "my" "Relatedness System (RS_Self)" (these internal information channels may connect "my" goal references, beliefs about "possibilities" from memory, the current emotional state of the dream, and the meta-cognitive function's assessment of the current dream situation, all screened and weighted by their respective "identifiability thresholds, ITs") under the action of the "Global Bidirectional Self-Organization (BSO) mechanism."

Once this "intention" forms and reaches a certain "activation intensity" (i.e., its ITs related to "identifiability" and "action-driving property" are "thresholded"), it is injected as a new "information flow" or "relational propensity flow"—an "intention Dependency Path flow (DPs_Intention_Flow)"—into the BSO network within RS_Self (including

the dream construction subsystem currently governed by the dream's "temporary director" CR_Dream_Scene and its IT_Dream).

5.3 BSO-Driven "Mutual Construction": The Source of the Co-Dance of "Sense of Control" and "Sense of Loss of Control" in Lucid Dreams

This "intention information flow (DPs_Intention_Flow)" cannot directly "control," "modulate," or "override" the "autonomous projection" of the dream's "temporary director (CR_Dream_Scene and its IT_Dream)" or possible dream "character archetype" references (SRO_Character_Archetype and its IT). Instead, as a new "influencing factor" or "source of perturbation" in the BSO network, it engages in complex, non-linear "interaction, mutual influence, mutual screening (via IT regulation), and co-shaping" with other internal information flows (DPs, e.g., "inherent necessary propensities, INPs" of "Primordial Vectors" from the deep subconscious, "projections" from emotional references, activation of memory fragments, and the "projection inertia" of the dream "temporary director" itself) that are driving the "projection" of dream "characters (REs_Dream_Character)" by the dream "temporary director" or "character archetype" references (and their ITs). This is the essence of "Mutual Constitution" as emphasized by Relatedness Theory.

Probabilistic "tilting of the scales": If the "relational propensity" or "pattern information" carried by this "intention information flow" happens to achieve "commonality resonance" with the current "projection rules" of the dream "temporary director" or "character archetype" reference (and their ITs) or with certain "possibility paths" of its activated subconscious information flow network (i.e., their "core rules" or "information patterns" are to some extent compatible or matching, and the "signal strength" of this "intention information flow" compared to relevant "identifiability thresholds, ITs"—such as the dream "temporary director's" "sensitivity IT" or "flexibility IT" to change—is sufficient to produce a significant impact), then under the continuous operation of BSO, it may probabilistically "tilt" the "projection" results of these dream generation mechanisms. This causes the behavior of dream "characters" or the evolution of dream scenes to change somewhat statistically in the direction "I" desire, thereby producing a (often incomplete and unstable) "sense of control."

Reciprocal shaping of "I" by dream content: Simultaneously, the behavior and speech of dream "characters" "autonomously projected" (i.e., under the dominance of their own "core rules" and activated internal

information flows) by the dream "temporary director" or "character archetype" reference (and their ITs), as well as the evolution of the entire dream environment, act as new "information input flows" to reciprocally influence and shape "my" "core self's (CRO_Self and its IT_Self)" subsequent intentions, emotional state, and "understanding" and "expectations" of the dream (this process also being subject to dynamic adjustments of relevant cognitive references and their ITs within the "core self"). For example, if an attempt to change the dream fails, it might enhance "my" cognition of the dream's "stubbornness" or adjust "my" belief in "control capability" (and its IT); if the reactions of dream characters are unexpectedly friendly or hostile, it might also change "my" emotional state and interaction strategies within the dream.

"Identifiability Thresholds (ITs)" as "dynamic relational valves" in BSO: The entire "mutual construction" process is profoundly regulated by the dynamically adjusting "identifiability thresholds (ITs)" inherent in each hierarchical level of references. These ITs are like "dynamic relational valves" in the BSO network. They change according to the current overall state of "my" "Relatedness System (RS_Self)" (including physiological state, emotional state, whether cognitive load is approaching the limit C_max_Cognitive_in_Dream, etc.) and the "influence weights" between different referential systems (this itself being a result of BSO dynamic interplay), thereby affecting the "effectiveness" of the "intention information flow" and the "stability" and "variability" of the "projection" by the dream "temporary director (CR_Dream_Scene and its IT_Dream)." For example:

"Compatibility Identifiability Threshold (IT_Compatibility)": If "my" intention information flow excessively conflicts with the "core rules" of the dream "temporary director (and its IT_Dream)" or the "emotional tone" reference (and its IT) of the current dream (i.e., falls below a certain dynamic "compatibility IT"), then the intention information flow may find it very difficult to produce a significant "mutual construction effect."

"Priority Identifiability Threshold (IT_Priority)": The dream's "temporary director (CR_Dream_Scene and its IT_Dream)" may, based on its activated deep subconscious propensities (PVs' INPs) or strong emotional references (and their ITs), assign an extremely high "priority IT" to certain dream elements or narrative threads it generates, making them difficult to be "changed" by lucid intention information flows.

"Lucidity Maintenance Identifiability Threshold (IT_Lucidity_Maintenance)" and "Reality Testing Strength Identifiability

Threshold (IT_Reality_Testing_Strength)": The "core self (CRO_Self and its IT_Self)" needs to continuously maintain these ITs above a certain level to preserve "meta-cognition" of the dream and generate effective "intention information flows." If these ITs "decay" due to the tension of the intrinsic "cognitive Existence-Evolution Paradox (EEP_Cognitive_Dream)," the "sense of control" will rapidly diminish.
"Dream Plasticity Identifiability Threshold (IT_Dream_Plasticity)": The "tolerance" or "sensitivity" (i.e., its IT_Dream_Plasticity) of the dream "temporary director (CR_Dream_Scene and its IT_Dream)" itself to being "changed" by "external intentions" (the "intention information flow" from the "core self") may also vary with different dream stages or content.
This complex "mutual construction" process, driven by "Global Bidirectional Self-Organization (BSO)" and dynamically regulated by "identifiability thresholds (ITs)," is precisely the source of the elusive "sense of control" in lucid dreams (when the "intention information flow" and dream generation mechanisms achieve a temporary "resonance" or "synergistic bias" in BSO), as well as the root of the experience of "loss of control" or "dream characters not obeying" (when the "intention information flow" fails to effectively "bias" dream generation mechanisms, or is "overwhelmed" by other stronger internal information flows).

5.4 Why is it Difficult for "I" to "Control" Dreams? Whence the "Sense of Autonomy" of Dream Characters?

Based on the complexity of the aforementioned "mutual construction logic" and "Global Bidirectional Self-Organization (BSO)" process, we can more profoundly understand why even in lucid dreams, "I" often find it difficult to completely "control" the direction of the dream or the behavior of dream characters, and why these dream characters exhibit a surprising "relative sense of autonomy":
The complexity and incomplete predictability of multiple internal information flows (DPs) and their "identifiability thresholds (ITs)" in their BSO "resultant force": Dream generation is an extremely complex BSO process. It is simultaneously influenced and "mutually constructed" by multiple "information flows" and "relational propensities" from: "my" lucid consciousness level (the "intention information flow, DPs_Intention_Flow" of the "Central Self-Reference" CRO_Self and its ITs), the subconscious level ("inherent necessary propensities, INPs" of "Primordial Vectors, PVs," repressed emotional references SROs and their ITs, the tension of unresolved "self Existence-Evolution Paradox,

EEP_Self"), the memory system (automatic associative information flows DPs of memory "Relative Entities, REs" and their "retrieval identifiability threshold, IT," which might be lower in dreams), and possibly physiological state information flows (DPs and their ITs). The lucid "I's" "intention information flow" (and its ITs) is merely one (albeit possibly highly "self-aware") "participant" in this complex BSO network. Its "signal strength" and "range of resonance" are often insufficient to "dominate" the "projection" direction of the entire network, especially when other internal information flows (e.g., those originating from strong emotional references or deep subconscious propensities) possess higher "activation weights" or stronger "projection inertia."

The "projection inertia" and unique "autonomous logic" and "identifiability threshold setting priority" of the dream "temporary director (CR_Dream_Scene and its IT_Dream)": Once the dream's "temporary director (CR_Dream_Scene and its IT_Dream)" emerges and begins to operate at the cognitive level through CSAM-like mechanisms, it possesses a certain "projection inertia" and its own (possibly not fully understandable or accessible to waking consciousness) "thematic coherence," "emotional logic," or "symbolic narrative grammar." It will not easily or completely be "overridden" or "rewritten" by "my" "core self's (CRO_Self and its IT_Self)" "intention information flow." Its "identification standards (IT_Dream)" might prioritize maintaining a certain "dream narrative flow" or "core emotional atmosphere" over immediate responsiveness to lucid intentions.

The "operational limitations" and relative "projection influence" of the "core self (CRO_Self and its IT_Self)" in the dream state: Even in a lucid dream, the operation of "my" "core self (CRO_Self and its IT_Self," especially its meta-cognitive and action-planning related cognitive units SROs) may be unstable or functionally limited (as revealed by the intrinsic "cognitive Existence-Evolution Paradox, EEP_Cognitive_Dream"). Its capacity to generate effective "intention information flows," stably inject them into the BSO network, and enable them to achieve effective "resonance" with other referential frameworks (CRs and their ITs) (i.e., the strength and persistence of its "projection influence") may be finite and easily disturbed by the "immersive pull" of dream content. Its relevant "identifiability thresholds (ITs," such as IT_Focus_on_Intention for focusing on intention, IT_Resistance_to_Dream_Logic for resisting dream logic) may also be in dynamic fluctuation, affecting the stability and clarity of its "projection." More importantly, the "core self (CRO_Self and its IT_Self)" is itself a

"referential center" co-shaped by other referential frameworks and information flows within the BSO network, rather than an absolute "origin point" possessing unilateral "control."
The Relatedness Theory source of dream characters' (REs_Dream_Character) "sense of autonomy":
Firstly, it originates from their being behavioral patterns emerging under the "projection" of the dream "temporary director (CR_Dream_Scene)" or specific "character archetype" references (SRO_Character_Archetype) and their "identifiability thresholds (ITs)," driven by complex, multi-sourced information flows (DPs). The sources of these information flows (e.g., deep subconscious propensities, integrated memory fragments, "projections" from emotional references different from "my" "core self") may not be immediately accessible or directly influenceable by "my" lucid consciousness.
Secondly, it may also originate from "my" "core self's (CRO_Self and its IT_Self)" "other-izing projection" of its "expectation mismatch" (i.e., the dream character's behavior does not conform to "my" expectation). When a dream character's behavior does not follow the pattern expected by "my" lucid intention information flow, the cognitive units (and their ITs) of the "core self (and its IT_Self)" might, via the BSO mechanism, "project" and "interpret" this "uncontrollability" or "unexpectedness" as that dream character possessing independent "thought," "intention," or "subjectivity," in order to maintain a (though possibly illusory) "coherence of interactive narrative" at the "phenomenological level" of the dream. The "identifiability threshold (IT_Plausibility_of_Autonomy_in_Dream)" for this "attribution" or "identification" of "autonomy" might be relatively low in dreams.

5.5 The Tendency of Lucid Dreams to Collapse: The Inevitable Outcome of the Intrinsic "Cognitive Existence-Evolution Paradox"

The reason the lucid dream state is difficult to sustain and easily collapses back into an ordinary dream lies fundamentally in the operation of the "Cognitive-level Existence-Evolution Paradox (EEP_Cognitive_Dream_State)" under the constraint of its "cognitive-bearing capacity (C_max_Cognitive_in_Dream," i.e., the limit of the cognitive system's processing capacity in the dream state), which may ultimately lead to the destabilization of the "meta-cognitive reference (CR_Lucidity)" that maintains "lucidity."
Continuous tension of the "cognitive Existence-Evolution Paradox": Maintaining the "lucid cognitive reference (CR_Lucidity," i.e., the stable

manifestation of the "I know I am dreaming" cognitive tag RE_Metacognitive_Lucidity_Tag) requires continuous "cognitive effort (h(T)_Lucidity," which can be understood as the "cost" of maintaining lucidity), such as constant meta-cognitive reflection, reality testing, and (if attempted) "intentional biasing" of the dream. This "maintenance cost" consumes the "cognitive resources" of "my" "Relatedness System (RS_Self)," which may already be limited in the sleep state.

The challenge of the dream's "immersive pull": Simultaneously, the vivid, novel, emotion-filled dream content (REs_Dream) "autonomously projected" by the dream's "temporary director (CR_Dream_Scene and its IT_Dream)" constitutes a powerful "immersive pull (v_Immersion)" on the lucid state of the "core self (CRO_Self and its IT_Self)." If the emotional intensity (determined by relevant emotional references and their ITs) or narrative appeal (determined by CR_Dream_Scene's "projection rules" and its IT_Dream) of the dream content is too high, this "immersive pull" will intensify.

Constraint of "cognitive-bearing capacity" and destabilization of "lucid reference": When the "immersive pull" continuously intensifies, or the "cognitive effort (h(T)_Lucidity," i.e., cognitive load) of maintaining lucidity becomes too high, causing RS_Self's overall "cognitive activity intensity" to approach or attempt to exceed its "cognitive-bearing capacity (C_max_Cognitive_in_Dream)" in the dream state, the contradiction of the "cognitive Existence-Evolution Paradox (EEP_Cognitive_Dream)" intensifies.

The "identifiability" of the "I know I am dreaming" cognitive tag falls below the "core self's" identifiability threshold (IT_Self): In this situation, the "cognitive resources" required to stably manifest the "I know I am dreaming" cognitive tag may become insufficient, or its "signal strength" may become too weak relative to the "immersive strength" of the dream content. As a result, the "identifiability" and "certainty" of this crucial "meta-cognitive tag" may gradually weaken and eventually fall below the relevant "lucid awareness maintenance identifiability threshold (IT_Lucid_Awareness_Maintenance)" or "meta-cognitive activation identifiability threshold (IT_Metacognitive_Activation)" within the "core self (CRO_Self)" and its identification standards (IT_Self).

Return to ordinary dreaming: Once the "manifestation" of the "I know I am dreaming" cognitive tag no longer "passes the threshold" of relevant identification, the "lucid" state ends, and "my" "core self (CRO_Self and its IT_Self)" is once again "captured" by the "projection" of the dream's "temporary director (CR_Dream_Scene and its IT_Dream)," reverting to a

state of "uncritical identification" with and "immersive experience" of dream content—the ordinary dream state. This profoundly reflects the transient nature of any finite "existence mode" (including "lucid dreaming" as this special cognitive referential state) and its dynamic instability driven by the intrinsic "Existence-Evolution Paradox (EEP)."

Through this Relatedness Theory analysis of "mutual construction logic," complex "Global Bidirectional Self-Organization (BSO)" operations, dynamic regulation by "identifiability thresholds (ITs)," and the intrinsic "cognitive Existence-Evolution Paradox (EEP_Cognitive_Dream)," we can more profoundly understand the captivating and dynamic "co-dance" between "I" and "dream" in lucid dreams, which is both full of creative potential and difficult to fully control. This is no longer a simple picture of "mind controlling matter" or "consciousness floating in illusion," but a vivid demonstration of how different referential frameworks (CRs) and their identification standards (ITs) interact and co-shape experience within a complex "inner cosmos," driven by universal self-organizing principles (BSO) and fundamental dynamic contradictions (EEP).

VI: The Mirror of Lucidity—Insights from Dreamscapes in Relatedness Theory on "I," the Boundaries of Reality, Memory Construction, and "Pure Nothingness" Potentiality (Chapter Summary)

6.1 Dreamscapes as "My (RS_Self's)" "Internal Thought Experiment Field": Listening to the Constructive Voice of Reality in Silence

Through Relatedness Theory's systematic deconstruction of dreamscapes, especially the peculiar state of lucid dreaming, we gain a profound understanding that dreams are far from being mere accidental byproducts of sleep or meaningless neural noise. They are more like a unique "mirror," reflecting a profound "internal thought experiment" conducted by "I," this "Relatedness System (RS_Self)," within its "inner cosmos." When the "signal strength" of external sensory "Dependency Paths (DPs_Sensory_Input," i.e., our informational connections with the external world) is significantly suppressed—due to the "identifiability thresholds (ITs_Sensory_Waking_State," i.e., perceptual thresholds) of their relevant perceptual reference units (SROs) being temporarily "substantially raised" or "selectively shut down" by the intrinsic "Global Bidirectional Self-Organization (BSO) mechanism" (i.e., the fundamental operational mode of mutual influence and co-evolution of system parts)—the cognitive mechanisms of our "Relatedness System (RS_Self)," particularly its core "Central Self-Reference (CRO_Self," i.e., the highest-order referential framework defining "my being me") and its identification standards (IT_Self), along with various internal cognitive "Commonality References (CRs_Cognitive," i.e., the intrinsic "rules" or "frameworks" we use to understand and organize experience) and their respective "identifiability thresholds (ITs)," then, in a relatively "pure" manner, fully exhibit their "Projective-Constructive Nature" in the absence of direct constraints from the external physical world.

In this unique "experimental field" of the dreamscape, whether it is the seemingly spontaneous generation of "Endogenous Relational Reality" governed by a temporary "Dream Scene Reference (CR_Dream_Scene," understandable as the dream's "temporary director") and its identification standards (IT_Dream) in ordinary dreams, or the effort of "I," this "core self (CRO_Self)" and its activated meta-cognitive functions (SROs_Metacognitive and their ITs), to engage in "mutual construction"

with this "inner cosmos" in lucid dreams, both eloquently corroborate a core tenet of Relatedness Theory: any "reality" we experience (whether "external" or "internal") is not a simple "reflection" of some pre-existing, independent "object." Rather, it is the constructive result of a cognitive subject actively (yet strictly following non-teleological principles) "projecting," "organizing," and "endowing with meaning" various accessible information flows (DPs) through its intrinsic referential frameworks (CRs) and their identification standards (ITs). Dreamscapes, particularly lucid dreams, are like a natural laboratory, allowing us to, against a background of relatively "silent" external sensory input, more clearly glimpse the operational tableau of this "projective-constructive" mechanism when its "raw materials" primarily originate from within us (such as memory, concepts, emotions, and those potentialities from "cognitive Pure Nothingness" not "illuminated" by waking consciousness).

6.2 Profound Manifestation of the "Relativity" and "Plasticity" of Cognitive Boundaries: Re-cognizing "Reality Rules" in the "Lawless Land" of Dreams

The dream experience, especially the "violation" and "reshaping" in lucid dreams of "physical laws" we take for granted (e.g., flying, passing through walls, teleportation—behaviors considered "impossible" under the waking world's physical referential framework and its identification standards), profoundly reveals that our cognition of "reality rules" is, in essence, highly dependent on specific "Commonality References (CRs)" and their "identifiability thresholds (ITs)." The "objective reality" we firmly believe in during our waking state is, in the view of Relatedness Theory, primarily "projected" and "maintained" by a whole set of relatively stable and robust "waking cognitive referential frameworks (CRs_Waking_Cognitive," including our internal "models" SROs_Physics of physical world operations and their related "physical plausibility identifiability thresholds" ITs_Physical_Plausibility) that we have evolved and learned over the long term. Dreamscapes, by temporarily "suspending" or "altering" the "projection rules" and "identifiability threshold settings" of these dominant waking referential frameworks (and their ITs) (e.g., the IT_Dream of the dream "temporary director" CR_Dream_Scene might have extremely low requirements for logical consistency), vividly demonstrate to us that the boundaries of "reality" are not absolute and rigid, but possess profound "relativity" and potential "plasticity."

The experience of lucid dreaming, moreover, can be seen as a special "exploratory platform" or "experimental field for micro-transitions" on an individual's cognitive "Existence-Evolution Axis (EEA_Self_Cognitive," i.e., the historical trajectory of fundamental "displacements" and reconstructions of an individual's core cognitive referential framework). On this platform, "my" "core self (CRO_Self)" and its identification standards (IT_Self) have the opportunity, within a relatively "safe" "inner cosmos," to actively or passively "test" the applicability boundaries of its existing cognitive referential frameworks (and their ITs), explore new "relational patterns" and "meaning possibilities," and even, through "mutual construction" with the dream "temporary director (CR_Dream_Scene and its IT_Dream)" and "experimental manipulation" of dream content, to "touch" and "activate" certain cognitive potentialities "veiled" by the "identifiability thresholds" of its waking cognitive referential frameworks. This exploration, although the "truthfulness" and "effectiveness" of its results still require "re-evaluation" and "integration" under the reference of the waking "core self (CRO_Self and its IT_Self)," undoubtedly provides unique "possibility inputs" and "dynamic perturbations" for the potential "displacement" (i.e., cognitive growth and breakthrough) of an individual's cognitive referential frameworks (and their ITs) and the evolution of their entire cognitive "Existence-Evolution Axis."

6.3 Final Corroboration of Relatedness Theory's Constructivist Essence of Memory: The "Forgetting" and "Re-presentation" of Dreams as "My" "Constructive Essence"

This part's third sub-section, with its in-depth discussion of the "gauze of memory in dream recall"—particularly concerning the fundamental difference between the "Raw Dream Relational Reality" during sleep (i.e., the primordial stream of experience in our dreams) and the "dream memory" that can be "recalled" after waking (as a "Relative Entity," RE_Dream_Memory, manifested in the waking state)—provides extremely persuasive corroboration for Relatedness Theory's core epistemological view on "the constructivist essence of memory."

We clearly see that due to the vast "IT mismatch across cognitive states" in "core rules," "projection methods," and "identifiability threshold settings" between the dream's "temporary director (CR_Dream_Scene)" and its identification standards (IT_Dream) during sleep, and the waking state's "core self (CRO_Self)" and its dominant cognitive referential framework and identification standards (ITs), the vast majority of

"primordial dream information and patterns (DPs/REs)" occurring during sleep, being incompatible with the "identification standards," "categories of understanding," and "memory encoding rules (and their ITs)" of the waking cognitive reference (and its ITs), are, relative to its waking cognitive framework, "veiled by Pure Nothingness" (i.e., covered by that infinite potentiality background not "illuminated" by the current cognitive framework) after the individual awakens.

Those dream fragments we can "remember" after waking are not faithful recordings of "primordial experience," but "constructive re-projections" that have undergone "selective retrieval" and "filtering" by the waking "core self's (CRO_Self and its IT_Self)" memory mechanisms (which can be seen as specific cognitive SROs and their ITs) above its "identifiability thresholds (ITs_Memory_Retrieval/Re-projection)," and have been "edited," "rationalized," "meaning-reconstructed," and "narratively organized" via the "Global Bidirectional Self-Organization (BSO)" mechanism.

This process profoundly reveals that, according to *Relatedness Theory*, all memory—whether of dreams or waking experiences—is not a simple "replication" of some objective "Relational Reality" of the "past," but a continuous, dynamic meaning construction performed by the current "I's" "core self (CRO_Self)" and its identification standards (IT_Self) under its current cognitive referential framework (CRs and their ITs), upon past "Dependency Path traces" and "Relative Entity pattern fragments." The common phenomenon of childhood amnesia—explained in *Relatedness Theory* as the extreme immaturity of the early "core self" referential framework and its identification standards, making it difficult to effectively encode experiences with "self-relevance" and "meaning anchors," thus preventing their "connection" and "retrieval" by the subsequent mature "I"—also corroborates, from another angle, this profound "Commonality Reference (CR) and Identifiability Threshold (IT) dependence" and "subjective constructivity" of memory.

6.4 Creative Interaction with "Cognitive Pure Nothingness" and "Linguistic Pure Nothingness": Lucid Dreaming—A Hidden Path to the "Unspoken Land"?

Relatedness Theory posits that any finite "Commonality Reference (CR," the intrinsic "rules" or "frameworks" we use to understand and organize experience) and its "identifiability threshold (IT," i.e., the "threshold" or "standard" by which these "rules" or "frameworks" can "identify" and "process" information), while "manifesting" a portion of "Pure Being" (the

sole, all-encompassing potentiality background of the cosmos) potentiality (i.e., "projecting" it as "reality" perceivable and understandable by us), necessarily "veils" a vaster domain of "Pure Nothingness" relative to that CR(IT) (i.e., infinite potentiality not "illuminated" or "specified" by the current CR(IT)). This includes "cognitive Pure Nothingness" (e.g., "inherent necessary propensities, INPs" of "Primordial Vectors, PVs" from the deep subconscious, irrational associations, "heterogeneous experiences" inconsistent with mainstream beliefs) "filtered out" by our waking logical referential framework (and its ITs), as well as "linguistic Pure Nothingness" (e.g., pre-linguistic intuitive experiences, subtle emotional atmospheres, or complex relations beyond the expressive capacity of current language) "veiled" by the "projection rules" and "lexical/grammatical" limitations of our commonly used linguistic referential framework (and its ITs).

The uniqueness of lucid dreaming may lie in its providing "my" "core self (CRO_Self)" and its identification standards (IT_Self) with a potential, albeit possibly unstable and not fully controllable, path to engage in a more direct, creative interaction with these "Pure Nothingness" potentialities usually "veiled" by the "curtain" of everyday cognitive references' "identifiability thresholds (ITs)":

Dream content as "symbolic manifestation" of "Pure Nothingness" potentiality: Those bizarre, non-logical, symbolically rich "things" or "scenes (REs_Dream)" in dreams may, in the view of Relatedness Theory, be precisely the "symbolic manifestation" of these potentialities from "cognitive Pure Nothingness" or "linguistic Pure Nothingness" (e.g., repressed emotions, unfulfilled needs, or "projections" of certain deep "archetypal" references) attempting to gain expression through the "alternative projection rules" of the dream "temporary director (CR_Dream_Scene)" and its unique identification standards (IT_Dream).

The potential for "interpretation" and "integration" provided by lucid "meta-cognitive awareness": In lucid dreams, because the meta-cognitive functions (SROs_Metacognitive and their ITs) of the "core self (CRO_Self and its IT_Self)" are activated, the individual has the opportunity to "face," "scrutinize," and "experience" these "projections" from "Pure Nothingness" in a relatively "aware" and (possibly) "detached" manner (by adjusting emotion-related ITs to gain emotional distance). This "meta-cognitive participation" may enable the "core self (and its IT_Self)" to:

"Identify" and "tag" the "signals" of these potentialities, even if they conflict with waking logical references (and their ITs) (this might be achieved by dynamically adjusting relevant ITs, e.g., temporarily

lowering the identifiability threshold for "logical consistency" while increasing sensitivity to "symbolic meaning").
Attempt, via the "Global Bidirectional Self-Organization (BSO)" mechanism, to engage in "meaning negotiation" and "creative integration" between these "retrieved" "Pure Nothingness informations" and existing cognitive referential frameworks (and their ITs).
The possibility of promoting "displacement" on the "core self's Existence-Evolution Axis (EEA_Self)" and personal growth: If this interaction and integration with "Pure Nothingness" potentiality in lucid dreams is successful (i.e., can form new, relatively self-consistent "self-insight" type "Relative Entities, REs_Self_Insight," and be "accepted" and "internalized" by the post-waking "core self" CRO_Self and its IT_Self), it might influence the operation of the "Existence-Evolution Paradox (EEP_Self)" within "my" "Relatedness System (RS_Self)" (e.g., by alleviating certain internal tensions caused by repressed potentialities, or providing new perspectives for resolving certain cognitive dilemmas). This might even, through BSO's non-linear dynamics, catalyze or facilitate a positive "displacement" of its "core self (CRO_Self and its IT_Self)" on its "Existence-Evolution Axis (EEA_Self," i.e., the historical trajectory of fundamental "displacement" and reconstruction of an individual's core referential framework), thereby achieving personal growth and breakthrough in cognitive, emotional, or creative aspects.

6.5 Retrospective on the Relatedness Theory Solution to the "Observer Perspective Paradox": The "Hand Behind the Scenes" on the Dream Stage

We have already discussed in detail in a previous philosophical elucidation (Part Four) that when "I" attempt to imagine "my absence," that "I" (observer I) which conducts the observation and experience stubbornly remains present. This phenomenon receives further corroboration and deepening in the Relatedness Theory interpretation of lucid dreams.
"My" "Relatedness System (RS_Self)," as the "Central Self-Reference (CRO_Self)" for its own experiential world and its inherent "identifiability threshold (IT_Self)," its operation is the indispensable, logically and functionally a priori background condition, referential framework, and ultimate "center for meaning attribution and integration" for all our subjective experiences (whether perceptions of "external reality" or imaginations and dreamscapes of the "internal world").
The uniqueness of lucid dreaming lies in its pushing this "core self

(CRO_Self and its IT_Self)," which usually operates "behind the scenes," to the "forefront":

Highlighting the "priority of reference": Even in the "alternative Relational Reality" of a dreamscape, the making of the judgment "I know this is a dream," and all dream content ultimately being experienced as "my dream," underscore the fundamental referential status of the "core self (CRO_Self and its IT_Self)" as the "first-person perspective" and "bestower of subjectivity." Without the "presence" and operation of the "core self (and its IT_Self)" (even if the "activation weights" of certain internal cognitive units SROs and their ITs have changed), there could be no lucid dream experience for "me."

Demonstrating the "flexibility of mutual construction": In lucid dreams, the dynamic "interplay" and "mutual construction" process between "my" "core self (CRO_Self and its IT_Self)" and the dream's "temporary director (CR_Dream_Scene and its IT_Dream)" vividly shows that the "core self (and its IT_Self)" is not a rigid referential system that can only passively reflect or accept. By activating its meta-cognitive functions (SROs and their ITs) and "intention information flows (DPs)," it can, to a certain extent (though not complete "control"), participate in the "co-shaping" of its experiential content. This "flexibility of reference and construction" manifested in the "inner cosmos" may also imply that in waking reality, our "core self (CRO_Self and its IT_Self)," in its "Global Bidirectional Self-Organization (BSO)" interaction with external world information flows (DPs), similarly possesses (though perhaps more constrained) potential for active construction and meaning endowment.

6.6 **Overall Insights from *Relatedness Theory*: The Mirror of Dreams, Reflecting the Evolutionary Tableau of Existence**

Dreamscapes (both ordinary and lucid) profoundly corroborate the "Commonality Reference (CR) and Identifiability Threshold (IT) dependence," relational constructivity, and dynamic evolvability of "existence": Dreaming is not an "exceptional state" detached from the fundamental operational principles of "Relational Reality." It precisely demonstrates, in a purer, more endogenous way, that the manifestation of any "reality" is inseparable from the "projection" and "organization" by specific "Commonality References (CRs)" and their "identifiability thresholds (ITs)"; inseparable from the dynamic "weaving" of "Dependency Path (DPs," i.e., "relations" themselves) networks; and inseparable from the universal operation of the "Global Bidirectional Self-Organization (BSO) mechanism." The fluidity, non-logicality, and plasticity

of dreamscapes also profoundly echo Relatedness Theory's core views that the "period of definitional power (T_CR," i.e., its effective operational timescale) of any reference (CR) and its IT is finite, and that the "existence basis" itself is continuously "displaced" and reconstructed along its "Existence-Evolution Axis (EEA," i.e., its historical evolutionary trajectory) driven by the intrinsic "Existence-Evolution Paradox (EEP," i.e., the fundamental tension between "existence" and "evolution").

"I" as the "Central Self-Reference (CRO_Self and its IT_Self)" am the central reference and (in the BSO mutual construction sense) co-constructor of my own entire experiential world (including dreamscapes): The Relatedness Theory exploration of dreamscapes ultimately leads us back to a profound understanding of that unique "Central Self-Reference (CRO_Self)" and its "identifiability threshold (IT_Self)" within "I," this "Relatedness System (RS_Self)." Whether it is waking reality, a hazy ordinary dreamscape, or a peculiar lucid dream, "I" am always that "referential core" endowing experience with subjectivity, constructing meaning, and situating myself within the relational network. However, this "core" itself is also dynamically evolving, co-shaped by the internal information flow (DPs) network it is situated in and the higher-order referential backgrounds (AROs and their ITs). We are both "creators" of our own worlds (in the sense of CR(IT) "projection" and BSO "mutual construction") and "created beings" and "participants" in this broader "Relational Cosmos."

The Relatedness Theory exploration of dreamscapes ultimately leads to deeper inquiries into and understanding of consciousness, reality, the self, "Pure Nothingness" potentiality, and the universal "relational logic" of the cosmos: By unifying this seemingly subjective and illusory phenomenon of dreamscapes into the dynamic tableau of Relatedness Theory's universal operation of "Relational Reality," we not only provide new theoretical tools for understanding the mechanisms of dreams, but also, for our further exploration of the essence of consciousness (as an emergent phenomenon of the operation of the "Central Self-Reference" CRO_Self and its IT_Self in a specific cognitive "Relatedness System" RS_Cognition), the boundaries of reality (as a relative construction of "projection" and "veiling" by specific references CRs and their ITs), the mystery of the self (as a dynamic evolutionary "Existence-Evolution Axis" EEA_Self trajectory), the creativity of "Pure Nothingness" potentiality (as an eternal source for the emergence of new possibilities), and whether the cosmos possesses some more fundamental "relational logic" transcending specific "laws" (possibly manifested in the "inherent

necessary propensities, INPs" of "Primordial Vectors, PVs" and the universal operation of "Global Bidirectional Self-Organization, BSO"), we open up new paths that are challenging yet profoundly illuminating for a series of ultimate philosophical questions.

Relatedness Theory's exploration of dreamscapes is, ultimately, a lucid mirror. It reflects the exquisite mechanisms and inherent limitations of "I," this cognitive subject, in constructing its experiential world; it also reflects that unending, magnificent tableau of "Relational Reality," continuously generating and evolving in reference and mutual construction. It summons us to understand and participate, with a more humble, more dynamic, and also more creative stance, in this unceasing "dance of relations" that we call "existence," unfolding between the infinite possibilities of "Pure Being" and the eternal unknown of "Pure Nothingness."

Part Eight: The Evolutionary Epic of Intelligent Civilization: Centering on Humanity's Six Great EEA Transitions

Introduction: "Relatedness System" as the Unit of Evolution

In the preceding parts of *Relatedness Theory*, we have systematically elucidated the universal dynamic principles governing the existence and evolution of all things in the cosmos as "Relatedness Systems (RSs)": any finite RS, driven by its intrinsic "Existence-Evolution Paradox (EEP)," necessarily undergoes periodic, fundamental "displacements" of its "existence basis"—that is, its core "Commonality Reference (CR)"—along its unique "Existence-Evolution Axis (EEA)."

Now, we will apply this entire set of theoretical tools to examine the "Relatedness System" we know best, the most complex and most intimately related to ourselves—Human Civilization (RS_Humanity). The purpose of this part is not simply to retell human history, but to attempt to unveil the profound intrinsic structure and rhythm, governed by the evolutionary dynamics of *Relatedness Theory*, hidden beneath the surface of this magnificent and turbulent historical pageant.

We will argue that the evolutionary history of human civilization is, in essence, an epic of its core CR undergoing six major "transitions." Each transition was not driven by some presupposed "progressive" purpose, but was a dynamic consequence of RS_Humanity, when facing its own EEP crisis, probabilistically giving rise to a new CR through the chaotic exploration of "Global Bidirectional Self-Organization (BSO)," thereby thoroughly reconstructing its own organizational patterns, capability boundaries, and world of meaning. From the first grasp of a stone tool, to the first weaving of language, from the founding of agriculture, to the awakening of transcendent thought, then to the enlightenment of scientific rationality, and even to the deep fusion of information and intelligence we are currently experiencing—we will dissect these six great "transition nodes" one by one, in order to demonstrate the profound insight of *Relatedness Theory*, as a unified theory, in understanding the evolutionary path of intelligent life itself.

First Transition: The Birth of Tools—The "Human-Thing" Composite System and the Emergence of CR_ToolUse

Background and EEP Crisis: The "Existence-Bearing Capacity" of RS_Proto-Human

Before the birth of tools, our ancestors, as a pre-human "Relatedness System" (RS_Proto-Human), their existence was entirely governed by their biologically defined CRO_Instinct (Instinctual Reference). This was a system whose core "commonality rules" centered on survival and reproduction, its internal "Dependency Paths (DPs)" being primarily physiological (such as hunger signals) and instinctual (such as flight responses to danger). Its interaction with the external environment (ARO_Environment) was direct and unmediated.

However, any finite RS necessarily faces its "Existence-Evolution Paradox (EEP)." For RS_Proto-Human, the tension of its EEP was extremely severe:

1.Transformative Propensity (v): Originated from the immense pressure of Open System Adaptation (OSA)—for example, climate change leading to reduced food sources, or the appearance of new, more powerful predators.

2.Limits of Persistence: Its biological physique (as the material basis of its existence) determined an extremely low "existence-bearing capacity (C_max)." Its ability to process hard-shelled nuts, to contend with large animals, and to procure meat from large carcasses was severely limited. When the pressure of v continuously increased while the system's C_max could not be enhanced, the EEP contradiction of RS_Proto-Human intensified, the solutions (its "period of definitional power T_CR") provided by its core CRO_Instinct were rapidly exhausted, and the entire system frequently fell into existential crises.

"Chaos" and BSO Exploration: Hand, Stone, and Contingency

Under immense EEP pressure, the behavioral patterns of RS_Proto-Human would become more diversified and "randomized"—this was not a purposeful "trial-and-error," but a necessary manifestation of the system's "Global Bidirectional Self-Organization (BSO)" dynamics exploring a broader possibility space under a state of high stress.

In this "chaotic exploratory period," RS_Proto-Human (via its RE_Hand) interacted innumerable times with "Relative Entities (REs)" in the environment—stones (RE_Stone). The vast majority of these interactions

were meaningless. However, at a certain contingent moment, a specific sequence of interactions (a DPs sequence) occurred: a hand (RE_Hand) picked up a stone (RE_Stone_A) and used it to strike another stone (RE_Stone_B). This action, as a product of BSO's chaotic exploration, probabilistically led to the emergence of an entirely new RE with high functional potential—RE_Sharp_Edge.

Emergence of a New CR and Reconstruction of RS

The contingent birth of this "RE_Sharp_Edge," and the unprecedented effectiveness it demonstrated in its subsequent application (e.g., accidentally cutting open an animal hide), rapidly reinforced, through BSO's positive feedback mechanism, that specific DPs sequence which led to its generation within RS_Proto-Human's cognitive Relatedness Level (RL). When this "action-result" causal DPs network stabilized, it marked the emergence of an entirely new cognitive "Specific Commonality Reference (SRO)"—which we term CR_ToolUse (Tool-Use Reference).

The "commonality rules" of CR_ToolUse were revolutionary; they were no longer about how the body directly reacts, but about "how to operate another RE (Stone A) via one RE (Hand) to change a third RE (Stone B), thereby creating an RE (Stone Flake) with entirely new functional attributes." The birth of this CR led to a fundamental reconstruction of RS_Proto-Human:

1.Formation of a composite system: A temporary, yet repeatedly constructible, "Human-Thing" composite system (RS_Human+StoneTool) was formed.

2.Expansion of the DPs network: The original DPs network was vastly expanded. In addition to biological DPs, it now included entirely new instrumental DPs spanning the boundary between subject and object: grasping, striking, cutting... These DPs integrated external inorganic matter as part of RS_Human's own functionality.

Evolutionary Consequences and Boundary Expansion

The emergence of CR_ToolUse, and the formation of this RS_Human+StoneTool composite system, was the first great "transition node" on humanity's EEA.

1.Alleviation of EEP: This new composite system had its C_max greatly enhanced. It could process previously unprocessable food and defend against previously undefeatable dangers. This significantly

alleviated the original EEP existential crisis, allowing RS_Humanity to stabilize on a new, more capable EEA "plateau phase."

2.Expansion of physical boundaries: Most importantly, by integrating external objects as part of its own function, humanity's physical capability boundaries were, for the first time and most fundamentally, expanded. Tools became extensions of the hand, extensions of teeth, extensions of strength. This was the first step in "liberating" itself from purely biological limitations. This transition laid the most primordial CR and DPs network foundation for the subsequent evolution of all more complex material civilizations.

Second Transition: The Revolution of Language and Symbols—The Establishment of CR_Symbolic and the Dawn of "Shared Reality"

Background and EEP Crisis: The Social Complexity Bottleneck of RS_Early_Human_Group

With the use of tools and the growth of populations, early human communities (RS_Early_Human_Group) faced a new EEP crisis. This crisis primarily stemmed from a sharp increase in social complexity:

1.Transformative Propensity (v): More complex tool-making technologies (evolution of CR_ToolUse) required more precise intergenerational transmission; larger-scale cooperative hunting and defense activities demanded more efficient real-time communication; increasingly complex social relations (such as kinship, hierarchy, reciprocity) needed more stable ways of being recorded and maintained. All these placed enormous v on the bandwidth and fidelity of information transmission.

2.Limits of Persistence: The dominant social organization at this time was still governed by a pre-linguistic CR_Primate_Social (based on emotions, facial expressions, body language, and simple vocal signals). The C_max of this CR lay in its ability to only process "here and now," concrete information; it could not transmit complex experiences about the "past," detailed plans for the "future," nor could it express abstract concepts, much less maintain a close-knit community beyond a certain

size (such as Dunbar's number). The old social CR encountered a fundamental bottleneck of its "Incompleteness of Foundation (IoF)."

"Chaos" and BSO Exploration: The Contingent Linking of Sound and Meaning

Under immense EEP pressure for social coordination, BSO exploration within communities became exceptionally active, especially manifested in the diversification of vocal behaviors. The vast majority of sounds were merely immediate emotional expressions or warnings. However, within a certain group, through countless, contingent BSO interactions, a specific, repeatable vocalization pattern (RE_Sound_Pattern) might have accidentally established a stable relational DP with a specific, commonly attended-to object or event (RE_Object/Event).

This process might have been: when seeing a beast during a hunt, an individual uttered a specific cry, and this cry happened to be imitated and repeated by other members, and was reinforced by positive feedback through multiple instances of "seeing beast - uttering cry - joint action."

Emergence of a New CR and Reconstruction of RS

When a sufficient number of such "sound-meaning" DPs were established and stabilized, forming a network with intrinsic combinatorial rules (primordial grammar), a revolution far more profound than the birth of tools occurred: CR_Symbolic (Symbolic Reference)—namely, language—emerged.

The core "commonality rules" of CR_Symbolic lay in "arbitrariness" and "combinability": a symbol (RE) could represent anything (RE), and symbols could be combined via grammar (DPs network rules) to generate an infinite number of new meanings. The birth of CR_Symbolic brought about the most thorough reconstruction of RS_Humanity:

1.Dawn of a new "Relational Reality" level: Besides the physical RL_Physical, an entirely new RL_Symbolic (symbolic reality level) was inaugurated. At this level, DPs were no longer physical forces or contacts, but informational, conceptual, and logical relations.

2.Profound transformation of CRO_Self: The internalization of language enabled the human CRO_Self, for the first time, to engage in "internal dialogue" (thought), to process abstract concepts, to make long-term plans, and to construct complex self-narratives.

3.Reshaping of RS_Social: Society was no longer organized merely through physical proximity and direct observation. Myths, laws, histories, values, and other abstract REs could, through the highly efficient DPs network of language, be transmitted and replicated throughout the entire community, thereby uniting thousands of individuals within a shared web of meaning.

Evolutionary Consequences and Boundary Expansion

The "displacement" by CR_Symbolic was a decisive transition on humanity's EEA, enabling *Homo sapiens* to distinguish itself.

1.Alleviation of EEP: It provided, at extremely low material cost, unprecedented capacities for information organization and coordination, greatly enhancing the C_max of the social system and successfully resolving the EEP crisis arising from social complexity.

2."Dimensional" expansion of cognitive boundaries: If tool use expanded human capabilities in the physical dimension, the birth of language expanded human cognitive boundaries almost infinitely in the temporal, abstract, and social dimensions. Humanity henceforth lived in a dual world: a real world governed by physical laws, and an equally real "shared reality" constructed by CR_Symbolic. We could not only cope with "present" reality but also live in memories of the "past" and anticipations of the "future," within a web of meaning woven from myths, values, and communal imagination. This transition laid the CR foundation for the subsequent possibility of all culture, politics, religion, philosophy, and science.

Third Transition: The Dawn of Agriculture—The Founding of CR_Agrarian and the Crystallization of Social Structure

Background and EEP Crisis: The Carrying Capacity Limit of RS_Hunter-Gatherer

After mastering rudimentary tools and symbolic language, humanity, in the form of hunter-gatherer communities (RS_Hunter-Gatherer), entered a long EEA "plateau phase." The core reference of this system was CR_Nomadic (Nomadic Reference), its "commonality rules" established upon high mobility, adaptive knowledge of vast territories, and small-scale, flexible social units. Its relationship with the external environment (ARO_Environment) was one of direct, immediate adaptation and extraction.

However, the intrinsic "Existence-Evolution Paradox (EEP)" of this seemingly successful model gradually intensified over time:

1.Transformative Propensity (v): Its core driver originated from Open System Adaptation (OSA). On one hand, post-glacial global climate change drastically altered ecosystems and resource distribution in various locales. On the other hand, more importantly, the survival advantages brought by the previous two transitions led to slow but continuous population growth. Increasing population density placed continually mounting pressure on the natural carrying capacity per unit of land.

2.Limits of Persistence: The mode of subsistence defined by CR_Nomadic had a harsh "existence-bearing capacity (C_max)"; the population that a piece of natural land could support was finite. As population density approached this C_max, old survival strategies reliant on immediate acquisition began to frequently fail. Resource competition within communities and migratory conflicts with external groups intensified, and the "existence basis" of the entire RS_Hunter-Gatherer began to waver.

"Chaos" and BSO Exploration: The Discovery of Relations in the Temporal Dimension

Under immense EEP pressure for survival, the "Global Bidirectional Self-Organization (BSO)" exploration within communities became exceptionally active. This was not purposeful "invention," but rather a more frequent trial of various behavioral patterns interacting with the

environment under existential crisis. Human interaction with plants had existed since antiquity, but at this stage, an entirely new "relation" was contingently discovered and reinforced by BSO's positive feedback.
This key discovery lay in the establishment of a causal Dependency Path (DP) in the temporal dimension. It was no longer the immediate return of "seeing fruit (RE_Fruit) → picking (DP_Action) → eating," but a completely new relational understanding spanning a long period: "the act of sowing at this moment (DP_Sowing) → a long period of waiting and tending (a series of new DPs) → a predictable rich harvest in the future (RE_Harvest)."

Emergence of a New CR and Reconstruction of RS

When this DPs network, based on "long-sequence causality," won out and stabilized in BSO's dynamic screening due to its ability to provide a more stable and abundant food source, an entirely new core reference that thoroughly subverted human subsistence—CR_Agrarian (Agrarian Reference)—laid its foundation.
The "commonality rules" of CR_Agrarian were fundamentally different from CR_Nomadic, encompassing:

1.Sedentism: Establishing long-term, fixed DPs with land.

2.Private Property: RE_Land and RE_Surplus (surplus products) emerged as new entities that could be exclusively possessed by specific RSs (families or individuals).

3.Long-term Planning: System operation had to refer to longer time cycles such as seasons and climate.

This "displacement" by the new CR brought about a complete structural reshaping of RS_Humanity:

1.Emergence of new REs: Villages, farmlands, livestock, granaries, permanent dwellings...

2.New DPs networks: Land ownership, irrigation systems, social division of labor (farmers, artisans, priests, soldiers), trade networks based on surplus products...

3.Crystallization of social structure: The organizational model of RS_Humanity crystallized from mobile, egalitarian hunting bands into complex, hierarchical, territorially-based agricultural societies.

Evolutionary Consequences and Boundary Expansion

The agricultural revolution was a profound transition on humanity's EEA, propelling human society onto an irreversible path of complexification.

1.Transformation of EEP: It greatly enhanced the C_max per unit of land, temporarily alleviating the EEP crisis between population and resources, but it also brought entirely new, more complex social EEPs (such as class conflict, power struggles).

2.Expansion of survival boundaries: Humanity's survival boundary expanded from passively adapting to nature to actively planning and transforming nature. For the first time, humans gained the capacity to extensively modify their own survival environment ARO. More importantly, humanity's temporal cognitive boundary was greatly extended, from focusing on the "present" to planning and investing in the "future."

Fourth Transition: The Breakthrough of the Axial Age—The Awakening of CR_Transcendental and the Reconstruction of the World of Meaning

Background and EEP Crisis: The "Meaning Vacuum" of Early Civilizations

The agricultural revolution gave birth to cities, states, and early empires (RS_Empire). Although these vast RSs achieved enormous success at the material and organizational levels, they soon fell into a new, deeper EEP crisis—a crisis concerning "meaning" and "legitimacy."

Transformative Propensity (v):

Incompleteness of Foundation (IoF): The core reference CR_Mythic_State (Mythic-Polis Reference) that sustained early empires, its "commonality rules" were typically:

1. Gods are local, guardian deities of their own tribe/city;

2. Morality is concrete, serving the order of the polis and monarchical rule. When empires expanded, incorporating innumerable ethnic groups with different beliefs and cultural backgrounds into one system, this local, arbitrary, and internally contradictory CR could not provide a unified, convincing framework of meaning and ethical

foundation for the vast, heterogeneous society, leading to immense "structural tension."

Open System Adaptation (OSA): Wars and exchanges between different civilizations shattered the "absoluteness" of their respective local gods and mythological systems, triggering widespread religious skepticism and spiritual emptiness.

Limits of Persistence: The "period of definitional power (T_CR)" of CR_Mythic_State, in terms of maintaining the spiritual unity of a vast empire, reached its C_max. It could not answer the ultimate questions individuals faced regarding immense social injustice, the cruelty of war, and the caprice of fate ("Why do I suffer?", "Where is justice?").

"Chaos" and BSO Exploration: The Inward Turn of the Spirit

Around the first millennium BCE, from the Mediterranean to China, human civilizations generally entered a "chaotic exploratory period" in thought. Prophets, philosophers, and sages (as special REs emerging within RS_Society, capable of profoundly reflecting on existing CRs) initiated a spiritual "inward turn." BSO's exploration was no longer merely focused on external modes of production but turned towards the internal world of human cognition and values.

Emergence of a New CR and Reconstruction of RS

Amidst this profound intellectual turmoil, an entirely new cognitive reference with astonishing commonalities—CR_Transcendental (Transcendental Reference)—emerged independently yet synchronously in different parts of the world.

The core "commonality rule" of CR_Transcendental lay in establishing a universal source of value and meaning that transcended the sensory world, local politics, and individual life.

It could be a transcendent "One God" (monotheism).

It could be the immanent, impersonal "Tao" or "Dharma" of the cosmos (Eastern philosophy).

It could be the universal, rational "Logos" or "Idea" (Plato).

It could be the cosmic law of causality concerning individual reincarnation and liberation, "Karma."

This "displacement" by the new CR brought about a thorough revolution in humanity's "inner cosmos":

1.Emergence of new REs: Universal love, individual soul, inner conscience, karmic retribution, nirvana, salvation... These entirely new, abstract REs became the core constituents of the human spiritual world.

2.New DPs network: Most importantly, a direct DP was established between the individual "inner self" and this "transcendental principle." An individual's ultimate value and meaning were no longer solely defined by their loyalty to family, polis, or monarch, but by their relationship with this transcendental principle.

3.Reconstruction of CRO_Self: Humanity's "Central Self-Reference" was profoundly reshaped. The individual transformed from an RE merely belonging to a polis or tribe into a moral subject possessing an independent inner spiritual space and responsible to universal laws.

Evolutionary Consequences and Boundary Expansion

The breakthrough of the Axial Age was a profound transition on humanity's EEA, concerning "meaning."

Alleviation of EEP: CR_Transcendental provided vast and complex empires with a higher-order, more inclusive ideology and ethical adhesive, effectively alleviating the crisis of social disintegration caused by religious pluralism and lack of meaning, making larger-scale, transcultural "civilizational RSs" possible.

Expansion of the boundary of the world of meaning: This transition expanded humanity's boundary of meaning from the worldly, local, and collective to the otherworldly, universal, and individual. It inaugurated humanity's spiritual "inner cosmos," laid the CR foundation for the subsequent development of all advanced religions, philosophies, and ethical systems, and continues to profoundly shape the CRO_Self of billions of people globally to this day.

Fifth Transition: The Enlightenment of the Scientific Revolution—The "Displacement" of CR_Scientific and the Fundamental Transformation of the Cognitive Paradigm

Background and EEP Crisis: The Cognitive Bearing Capacity Limit of RS_Scholastic

After the Axial Age, humanity's knowledge system (especially in the West)

gradually came to be governed by an RS_Cognition centered on CR_Scholastic_Authority (Scholastic-Authority Reference). Its "commonality rule" was: truth originates from authoritative texts (such as the Bible, Aristotle's works) and is obtained through rigorous logical deduction. This system maintained its stability during the long EEA "plateau phase" of the Middle Ages.

However, after the Renaissance, the "Existence-Evolution Paradox (EEP)" of this cognitive system rapidly intensified:

Transformative Propensity (v): Its v grew with unprecedented intensity, primarily due to:

Open System Adaptation (OSA): The Age of Discovery, the invention of printing, and the appearance of new "tool RSs" such as the telescope and microscope brought to RS_Civilization_Europe a massive influx of entirely new information DPs (species from the New World, the true trajectories of celestial bodies, etc.) that directly conflicted with authoritative texts.

Incompleteness of Foundation (IoF): CR_Scholastic_Authority's intrinsic theoretical incompleteness was thoroughly exposed when attempting to explain these new, precise empirical "anomalies."

Limits of Persistence: The old paradigm, in order to maintain its T_CR (period of definitional power), was forced to pay an extremely high "maintenance cost (h(T))", for example, the increasingly cumbersome "epicycle-deferent" model designed by the Ptolemaic system to explain planetary retrograde motion. The system's "existence-bearing capacity (C_max)"—its ability to explain reality—had reached its limit.

"Chaos" and BSO Exploration: The Turn from Text to Nature

Europe in the 16th to 17th centuries was a period of intense "chaotic exploration" on humanity's cognitive EEA. The old authoritative CR began to destabilize, and thinkers (as special REs emerging within the RS) started to explore entirely new paths to "seek truth" through the "Global Bidirectional Self-Organization (BSO)" mechanism. The core of this exploration was a shift from reliance on "texts" to the direct "reading" of the great book of "Nature."

Emergence of a New CR and Reconstruction of RS

Amidst this intellectual chaos, an entirely new, extremely powerful cognitive reference—CR_Scientific_Method (Scientific Method Reference)—emerged and eventually stabilized through the foundational work of a generation of giants like Copernicus, Galileo, and Newton. Its core "commonality rules" were revolutionary:

1.Mathematical Language: The structure and motion of the cosmos can be described in precise mathematical language (a new cognitive SRO).

2.Experimental Arbitration: The ultimate validity of any theory must be tested by controllable, repeatable experimental observations.

3.Falsifiability: A theory must make predictions that can potentially be negated by experience to have scientific value.

This fundamental "displacement" by CR_Scientific thoroughly reconstructed humanity's RS_Cognition:

Emergence of new REs: "Controlled experiment," "mathematical formula," "physical law," "verifiable data," "peer-reviewed paper," etc., became entirely new, core REs in the knowledge system.

New DPs network: Theoretical construction, experimental design, data analysis, mathematical deduction, and global collaboration via academic journals constituted an entirely new, efficient DPs network for knowledge generation and verification.

Evolutionary Consequences and Boundary Expansion

The Scientific Revolution was the most important transition on humanity's cognitive EEA, and its consequences were decisive.

Transformation of EEP: The new CR_Scientific provided a framework with a higher C_max and a built-in self-correction mechanism (to cope with v). It no longer attempted to provide an ultimate, unchanging truth, but established a dynamic process that could continuously evolve and "approximate" more effective explanations. This transformed the growth of knowledge itself from a "crisis" that led to the collapse of old systems into the "norm" of the new system's operation.

Synchronous expansion of cognitive and physical boundaries: This transition expanded humanity's cognitive boundaries from the realm of "revelation and authority" to the vast territory of "mathematics and empiricism." This expansion of cognitive boundaries, through technological application (the Industrial Revolution), directly translated into an unprecedented capacity to transform the physical world, and humanity's physical capability boundaries also underwent explosive expansion.

Sixth Transition (Ongoing): The Fusion of Information and Intelligence—The Emergence of CR_Symbiotic and the Redefinition of Cognitive Boundaries

Background and EEP Crisis: The Bearing Capacity Limit of Modernity

The Industrial Civilization (RS_Industrial) ushered in by the Scientific Revolution, its core CR based on energy drive, material production, and the organizational principles of nation-states, is now, after several centuries of high-speed development, facing its own most profound EEP crisis.

Transformative Propensity (v): The intensity and complexity of its v are unprecedented:

Fluidity of Internal Relations (FIR): Globalization has created an extremely complex, interdependent economic and informational DPs network, within which "butterfly effects" and systemic risks have sharply increased.

Open System Adaptation (OSA): Issues such as climate change, resource depletion, and global pandemics pose fundamental challenges to the ARO_Environment of human civilization as a whole.

Information Overload: Digital technology has brought about an exponential growth of information; this enormous information flow v far exceeds the cognitive processing capacity of human individuals and traditional organizations.

Limits of Persistence: The old CR_Modernity, based on the framework of the industrial era and nation-states, its capacity (C_max) to solve global, highly complex problems is clearly insufficient, and its "definitional power" is being rapidly dissipated.

"Chaos" and BSO Exploration: The Deep Symbiosis of Humans and Machines

We are currently in the midst of this EEA "transition node." Its most core characteristic is the unprecedented deep combination and symbiosis

occurring between RS_Human and RS_AI (Artificial Intelligence system). BSO's chaotic exploration is unfolding in forms such as the rapid iteration of algorithms, the interweaving of global data flows, and the continuous innovation of human-machine interaction modes.

Emergence of a New CR and Reconstruction of RS

In this ongoing, intense BSO process, an entirely new, composite CR_Symbiotic_Intelligence (Symbiotic Intelligence Reference) is emerging on the horizon. Its "commonality rules" are still in formation, but possible core aspects include:

1.Human-Machine Synergy: Deeply coupling human abstract intelligence and value judgment with AI's super-computational and pattern recognition capabilities through efficient DPs networks.

2.Algorithmic Governance: Entrusting an increasing number of rule-making and resource allocation tasks in social and economic domains to data-driven algorithmic SROs.

3.Fusion of Virtual and Real: The boundaries between the physical world and the digital world (a vast RL_Digital constituted by information DPs) are becoming increasingly blurred.

This reconstruction is reshaping everything about RS_Humanity with unprecedented depth and breadth:

Emergence of new REs: "Algorithm," "large language model," "digital twin," "metaverse"...

New DPs networks: Global real-time data flows, brain-computer interfaces, Internet of Things...

Redefinition of CRO_Self: An individual's self-identity, social relations, and even ways of thinking are being profoundly changed through continuous interaction with this new intelligent environment.

Conclusion

Through the analysis of six key "transition nodes" on the Existence-Evolution Axis of Human Civilization (EEA_Humanity), we have been able to re-examine our own evolutionary epic from the perspective of *Relatedness Theory*. This history is no longer a linear concatenation of isolated events, nor a "progressive" ladder guided by some mysterious teleology, but the dynamic process of RS_Humanity, this grand "relational symphony," continuously reconstructing its "musical score" (core CR)

under the eternal drive of its intrinsic "Existence-Evolution Paradox (EEP)."
From this, we see several profound, consistently recurring evolutionary logics:

1.The non-teleological essence of evolution: The fundamental reason for each transition, from the use of stone tools to the fusion with artificial intelligence, is that the old CR, when faced with increasing v (transformative propensity), reached its "existence-bearing capacity (C_max)," and EEP contradictions intensified. The emergence of a new, more complex CR is a contingency-laden self-organizing reconstruction undertaken by the system in search of new dynamic stability, not for some presupposed "more advanced" goal.

2.RS combination as the core mechanism for boundary expansion: Almost every key step in the evolution of human civilization has been accompanied by a profound formation of a "composite system." From the "human-thing" composite (tools), to the "human-human" social composite (language, culture, state), and to the "human-machine" composite we are experiencing today (artificial intelligence), RS_Humanity expands its physical, social, and cognitive boundaries most fundamentally by establishing new DPs connections with another RS to give rise to an entirely new CR_Composite.

3.We are currently in the midst of the most intense "transition node": The examination of EEA_Humanity ultimately brings our focus back to the present. We are not at the end of history but are personally experiencing what is perhaps the most profound and rapid "displacement" of a core CR to date—the transition from the CR_Industrial of industrial civilization to an unknown CR_Symbiotic_Intelligence. The global crises, technological disruptions, and social fragmentations we experience are typical characteristics of the "chaotic exploratory period" of this "transition node."

Ultimately, what *Relatedness Theory* offers us is not a deterministic prediction of the future, but a more profound "meta-wisdom": the insight that EEP is an eternal paradox permeating all finite existence. Understanding that our own civilization is currently at such a critical juncture of profound EEP intensification and EEA transition means that we need to participate, with unprecedented lucidity and creativity, in this BSO exploration of the future RS that we are collectively shaping. How we respond to the current EEP will determine

the nature of the "existence basis" (the new CR) for EEA_Humanity's next "plateau phase." This, perhaps, after elucidating the past, is the most fundamental responsibility and revelation that *Relatedness Theory* points towards for our future.

Part Nine: What is Existence? Why Does Existence Exist?

What is Existence?—A Transient Chord in the Web of Relations: A Dynamically Manifested Pattern Amidst Constraints and Costs

In the vision of *Relatedness Theory*, "Existence" thoroughly departs from the static, isolated image endowed with intrinsic essence by traditional philosophy. It is no longer a "thing" awaiting discovery or a "state" that can be simply defined, but a profound, multi-layered, relational, dynamic, and internally tension-filled process and its transiently emergent structured patterns. All of this ultimately originates from and manifests as the dynamic phenomenalization of the sole, infinite potentiality of "Pure Being" under specific references and constraints.

I.The Ontological Foundation of Existence: From the Sole, Infinite Potentiality of "Pure Being" to the Primordial Fabric of "Relational Reality"

1. "Pure Being" as the sole, all-encompassing source of possibilities:

"Existence" is not born from some absolute "void" or "non-existence"; its ultimate, sole ontological substrate is "Pure Being"—an infinitely rich, completely undifferentiated (i.e., the state before being specified by any particular "Commonality Reference, CR"), potentiality field intrinsically containing eternal random fluctuations. "Pure Being" is the sole source of all possible relations, structures, laws, and phenomena in the cosmos. It is not "emptiness" in the traditional sense, but is filled with the "possibility" of forming everything.

2. The "Dependency Path (DPs)" network as the basic fabric of "Relational Reality":

The infinite potentiality of "Pure Being," through its most fundamental distinguishable units—"Primordial Vectors (PVs)" (these PVs carry the most fundamental "inherent necessary propensity," i.e., their unique "way or potentiality of existence and interaction," and "bidirectional potential infinite extensibility"; these two together constitute the logical premise and ontological root for the "Global

Bidirectional Self-Organization, BSO" mechanism to operate, and provide the possibility basis for the initial source of rules for the cosmic "relational grammar")—under the universal action of BSO (this fundamental organizing principle originating from the interactive logic of PVs), their "inherent necessary propensities" interact and gradually give rise to "potential commonality rules." Subsequently, under the action of the "Commonality Self-Activation Mechanism (CSAM)" (as a specific manifestation of BSO in the structural origin phase, possibly including the synergistic dual paths of "Superpositional Emergence" and "Entangled Stabilization"), these PVs are probabilistically "ignited" according to the already emergent "potential commonality rules," forming "Dependency Paths (DPs)"—that is, "relations" themselves that have been activated. These dynamically changing DPs interconnect, weaving the basic network of "Relational Reality." This constitutes the most direct ontological material and connective framework for "existence" to become structured. "Primacy of relations over entities" is the first cornerstone for understanding the essence of "existence."

II.The Manifested Form of Existence: Transient "Relative Entity (REs)" Patterns Emergent from the DPs Network Under the Context and "Projection" of "Commonality References (CRs)" (and their "Identifiability Thresholds")

A pure "Dependency Path (DPs)" network itself, if lacking further organization and reference, might still be chaotic and amorphous. The concrete "existents" we experience—termed "Relative Entities (REs)" in *Relatedness Theory*—are manifested upon this foundational DPs network through further self-organization and the reference and "projection" of specific "Commonality References (CRs)" (and their inherent "identifiability thresholds").

1. "Commonality Reference (CR)" as the definer of "existence," shaper of context, and source of order:

When relatively stable "Commonality References (CRs)" (a CR itself being a relatively stable relational structural pattern embodying specific "commonality rules") emerge from the DPs network via the "Global Bidirectional Self-Organization (BSO) mechanism," this CR provides a local "existence basis," operational rules, and a semantic referential system. A CR is like a transiently stable "island" formed in an infinite "ocean of relations," or a "lens" that focuses and screens. Its core

role, under its referential framework and inherent "identifiability threshold," is to:

Enable "distinguishable differences" to manifest: Only within the referential framework of a certain CR can the multifarious relational patterns in the DPs network be effectively "distinguished," "identified," and endowed with relative "boundaries."

Enable "operational rules" to be established: A CR intrinsically, through its own structure and "definitional power" (this "definitional power" originating from its consequence of being followed by BSO processes as a stable reference), stipulates the connection modes of DPs within its sphere of action, the rules for REs to be stably "projected" and manifested from the DPs network (i.e., "projection rules"), and the basic "laws" for the interaction between these REs. These "laws" are emergent, context-dependent (dependent on that CR and its "identifiability threshold"), and not a priori given.

Enable "meaning" to be generated: A CR endows specific contextual meaning, relative to that CR, to the "information" (as patterns of "relatedness and difference" transmitted on DPs, their "visibility" affected by the CR's "identifiability threshold") flowing through the "Relatedness System (RS)" it defines and the "events" occurring (changes in REs states or reorganization of DPs).

2. "Relative Entities (REs)" as transient relational patterns stably manifested by the DPs network under CR reference and projection:

Under the hierarchical context, "projection rules," and corresponding "identifiability threshold" defined by a specific CR (e.g., a "Central Commonality Reference, CRO" defining a "Relatedness System, RS," or a "Specific Commonality Reference, SRO" defining a "Relatedness Level, RL" within an RS), the underlying, dynamic DPs network gives rise to certain structured patterns possessing relative stability and identifiability—these are "Relative Entities (REs)."

REs are the "things" in our experiential world (e.g., an atom, a cell, a person, an idea, a social structure), but their deep essence is not that of isolated "entities" possessing intrinsic attributes. Rather, they are transient "chords," dynamic "vortices," or stable "projection patterns" of the DPs relational network under specific CR reference. They are not the fundamental "notes" or "water droplets" constituting relations, but perceivable holistic forms collectively "played" or "converged" by these

more fundamental elements under specific rules and the screening of an "identifiability threshold."

The "no intrinsic attributes" of REs: REs do not possess any a priori, fixed, immutable "intrinsic essence" or "attributes" independent of the DPs relational network in which they are embedded and the CR context that defines them. All their observable and describable characteristics are relational manifestations, relative properties emerging from their interdependence and reference with other REs and the CRs defining them.

The "context-dependence" of REs: The existential state, specific form, exhibited attributes, and endowed meaning of REs all entirely depend on the specific CR(s) (and their "identifiability thresholds") that define and "project" them. If a CR changes (e.g., undergoes "displacement" on the "Existence-Evolution Axis, EEA," its rules and "identifiability threshold" potentially adjusting accordingly), then everything about the REs under that CR's reference may undergo profound change or even completely "disappear" (i.e., no longer be stably projected and manifested by that new CR').

III. The Essential Mode of Existence: A Dynamic, Processual "Persistence" and "Evolution," Fraught with Intrinsic "Existence-Evolution Paradox (EEP)"

In the vision of *Relatedness Theory*, "existence" is by no means a static "Being," but an eternal process of "Becoming," a dynamic process far from equilibrium, continuously undergoing self-maintenance and structural reconstruction amidst profound intrinsic contradictions and fundamental constraints.

1. Dynamic Self-Maintenance and the capacity for "Persisting":

Any "Relatedness System (RS)" manifested from "Pure Being" potentiality (defined by its core CRO and its "identifiability threshold," internally containing complex DPs networks and REs manifested thereupon) must, through the continuous operation of its intrinsic "Global Bidirectional Self-Organization (BSO) mechanism," engage in continuous (generalized) exchanges of matter, energy, and information with its relative "Pure Nothingness (PN)" which serves as its logical boundary and potentiality background. It needs to do this to resist "erosion" from the eternal fluctuations of "Pure Being," integrate internal information flows (e.g., handling conflicts or "noise" arising from the "Incompleteness of Foundation, IoF" of its core CR rules or the "Fluidity of Internal

Relations, FIR" of its DPs network), and repair local damages (e.g., severance of DPs or destabilization of REs), thereby dynamically maintaining the relative stability of the overall structural pattern and operational rules defined by its core CRO (i.e., its CRO's "period of definitional power, T_CRO"). In this sense, "existence" primarily means a capacity for continuously "persisting" amidst dynamic change.

2. The intrinsic "Existence-Evolution Paradox (EEP)" as the fundamental engine driving "Evolving":

However, this "dynamic self-maintenance" is not without tension. The core impetus of "existence" originates from the profound, intrinsic "Existence-Evolution Paradox (EEP)" that any finite RS necessarily faces.

As detailed in Chapter 11, EEP refers to the eternal conflict, under the fundamental constraint of that RS's finite "existence-bearing capacity (C_max)" (i.e., the overall "capacity" limit, determined by its core CR structure, for the RS to organize information, transmit influence, manage internal conflicts, and effectively interact with the environment), between the RS's intrinsic overall "evolutionary rate (v)" (originating from its profound ontological condition: the four roots of Infinite Potentiality Pressure (IPP), Incompleteness of Foundation (IoF) of core CR rules, Fluidity of Internal Relations (FIR), and Open System Adaptation (OSA) as an open system co-evolving with a dynamic environment—this manifests as an aggregate internal structural tension or transformative propensity pushing the RS to deviate from its current stable state, explore new relational patterns, and change its own structure or rules) and its core CR's "period of definitional power (T_CR)" required to maintain the stability of its "existence basis" (i.e., its rule system), along with the corresponding, possibly superlinearly growing (with T_CR) generalized "maintenance cost (h(T))".

3. Evolutionary trajectory along the "Existence-Evolution Axis (EEA)" under fundamental constraints:

The eternal operation of EEP, and the BSO adjustments made by an RS to manage this paradox under its C_max constraint, collectively drive that RS along its unique, non-linear "Existence-Evolution Axis (EEA)." This axis alternates between relatively stable "plateau phases" (during which, within a certain core CR's T_CR, EEP achieves a temporary, dynamic equilibrium) and periodic (though not strictly deterministic), drastic "transition nodes" (when, due to the intensification of EEP contradictions leading to the destabilization of the old core CR

and the disintegration of its rule system, a new CR', capable of temporarily alleviating or accommodating EEP contradictions in a new way, probabilistically emerges via BSO and possibly reactivated CSAM mechanisms, thereby achieving a fundamental "displacement" of the RS's "existence basis"—i.e., the rule system embodied by its core CR). In this sense, "existence" also necessarily means a continuous process of "evolving."

IV. Fundamental Characteristics of Existence: The Universal Imprints of Transience, Costliness, and Limitedness

Relatedness Theory, through its dynamic, relational, and contradiction-driven understanding of "existence," profoundly reveals that any finite "existence" (i.e., any RS) manifested from "Pure Being" potentiality necessarily possesses the following fundamental characteristics:

1. Transience: Due to the drive of the eternal "Existence-Evolution Paradox (EEP)," and because the "period of definitional power (T_CR)" of any core CR is necessarily finite (due to the (possible) superlinear growth of its "maintenance cost (h(T))" and the RS's finite "existence-bearing capacity (C_max)" constraint), there are no eternally immutable "existence patterns" in the cosmos. Any structure, no matter how stable and persistent it may seem within its T_CR, will ultimately and inevitably undergo a fundamental reconstruction or disintegration of its core CR rule system (i.e., CR "displacement") on its "Existence-Evolution Axis (EEA)." In the cosmic tableau of *Relatedness Theory*, stability is only temporary and relative, while flux and transformation are absolute and universal.

2. Costliness: Maintaining any structured, ordered "existence" (i.e., an RS operating stably under a specific CR reference) has a "cost." At the philosophical principled level, this "cost" manifests as the continuous "organizational effort" or generalized "energy/information input" (conceptually corresponding to "maintenance cost, h(T)" in EEP) that the RS must expend to resist internal tendencies towards disintegration brought by its "evolutionary rate (v)"; to cope with the continuous challenges of "Infinite Potentiality Pressure (IPP)" from the external relative "Pure Nothingness" potentiality background and "Open System Adaptation (OSA)" demands from the open environment; to correct errors, process information, integrate conflicts; and to draw "negentropy" (if this concept is applicable in *Relatedness Theory's* generalized information dynamics) from "Pure Being" potentiality or "discharge" some generalized "waste" (to maintain its internal order and stability)

into its relative "Pure Nothingness" background. "Existence" requires continuous "expenditure" to persist in the eternal game against "non-existence" (referring to the disintegration of its specific structural pattern).

3. Limitedness: For any finite RS, the growth of its complexity (e.g., the number and connection complexity of its internal REs and DPs), its "activity intensity" (e.g., the magnitude of its intrinsic "evolutionary rate, v"), or the enhancement of its "stability" (e.g., the length of its core CR's T_CR), are all necessarily limited by a fundamental "existence-bearing capacity (C_max)" determined by its core CR's structural characteristics. This C_max represents the overall "capacity" limit of that RS as a whole to organize information, transmit influence, manage internal conflicts, integrate internal and external changes, and effectively interact with the environment. An RS always operates and evolves within this inherent "capacity boundary"; attempting to transcend this boundary (e.g., when EEP-driven internal "activity intensity" Σ tries to exceed C_max) usually leads to the destabilization of the core CR and fundamental reconstruction of the RS.

In summary, in the ultimate vision of *Relatedness Theory*, "existence" is profoun dly understood as:
Originating from the sole, infinitely rich potentiality background of "Pure Being," t hrough the universal operation of the "Global Bidirectional Self-Organization (BS O) mechanism" (this being the "logical genesis" originating from the "bidirection al potential infinite extensibility" and "inherent necessary propensity" of "Primord ial Vectors, PVs" and their interaction), and, manifesting at specific stages as the probabilistic "ignition" of the "Commonality Self-Activation Mechanism (CSA M)," "Dependency Paths (DPs)"—this basic fabric of "Relational Reality"—emerge. These dynamic DPs networks, under the context and "projection rules" defined b y hierarchically structured "Commonality References (CRs)" (and their inherent "i dentifiability thresholds"), which also emerge self-organizedly via BSO, stably ma nifest as "Relative Entities (REs)"—possessing no intrinsic essence but carrying s pecific patterns and (possibly) internal informational states (e.g., information abo ut their own certainty or self-consistency under that CR reference). It is itself an eternal, open, dynamic process of self-maintenance and evolution whose change s do not point to any presupposed goal. This process is profoundly driven by its i ntrinsic "Existence-Evolution Paradox (EEP)"—that is, the fundamental conflict be tween its overall "evolutionary rate (v)" (originating from its continuous tension with infinite potentiality, the incompleteness of its own rules, the fluidity of intern al relations, and the adaptive demands of an open environment) and its core C R's "period of definitional power (T_CR)" and corresponding generalized "mainten ance cost (h(T))", under the constraint of that RS's finite "existence-bearing capa city (C_max)". It thus undergoes periodic (though not strictly deterministic) "displ acement" and reconstruction of its core CR (i.e., its "existence basis," the rule sy

stem it embodies) along its unique "Existence-Evolution Axis (EEA)."
In short, existence is: a relative, transient, processual relational pattern, woven by dynamically activated "relations (DPs)" in an ocean of infinite p otentiality, manifested under the context and "projection" of self-organize d emergent "references (CRs and their identifiability thresholds)," and dri ven by intrinsic "contradictions (EEP)," continuously undergoing self-mai ntenance and structural reconstruction under the fundamental constraint s of "cost (h(T))" and "limits (C_max)." It is not a solid, static "noun," but a fluid, tension-filled "verb"—it is "relating," it is "emerging," it is the stru ggle of "persisting," and also the necessity of "evolving." Existence is pre cisely this unceasing cosmic symphony in the "web of relations," fraught with cost and creation, whose ultimate source of all possibilities and final place of return is the sole, infinite "Pure Being."

Why Does Existence Exist?—The Unity of Intrinsic Mechanisms and Necessary Constraints

Relatedness Theory's answer to the fundamental question "Why does existence exist?" does not resort to any external creator, presupposed blueprint, or ultimate purpose. Instead, it profoundly reveals the intrinsic necessity for "existence" to occur from the infinite potentiality of "Pure Being" and to persist (in a dynamically reconstructive manner). This necessity originates from *Relatedness Theory's* most basic ontological posits, core generative and organizational mechanisms, and unavoidable dynamic contradictions and constraints. They act in concert, making "non-existence" (referring here to absolute nothingness, or "Pure Being" potentiality eternally remaining in its completely undifferentiated, absolutely static primordial state) an extremely improbable, or rather, logically incomplete or dynamically unstable state within the cosmic tableau of *Relatedness Theory*.
Its core reasons can be broken down into the following interconnected levels, originating from the basic principles of *Relatedness Theory*:

1. The infinite potentiality and eternal intrinsic fluctuations of "Pure Being" are the primary ontological prerequisite for "existence" to be possible:

The starting point is not absolute nothingness, but infinite possibility: The ontological starting point of *Relatedness Theory* is the sole "Pure Being," an infinitely rich, completely undifferentiated potentiality field intrinsically containing eternal random fluctuations, not some absolute "Void" or "non-existence." This posit itself provides the most basic, indispensable possibility for "something (however rudimentary and transient) to happen or exist."

The priority of "possibility" itself and the dynamic nature of "Pure Being": As long as "possibility" itself is posited as the logical basis of the cosmos (i.e., the existence of "Pure Being" is accepted as a fundamental principle), and this "possibility" is infinite and dynamic (the infinity and complete undifferentiatedness of "Pure Being" make it logically impossible for it to be in absolute stasis; its most primordial, most universal manifestation is eternal random fluctuation), then the occurrence of some form of "existence" (no matter how simple its form or how short its duration) becomes a logically possible and dynamically intrinsically "germinative" result. If even possibility did not exist, or if

possibility were absolutely static, then any discussion about "existence" versus "non-existence" would be moot. The positing of "Pure Being" is the first, and most fundamental, answer to "why existence can exist": because "possibility" itself "is," and this "possibility" is eternally dynamic.

2. The "inherent necessary propensity" of "Primordial Vectors (PVs)" and the universal interactive logic of "Global Bidirectional Self-Organization (BSO)" are the basic pathways and intrinsic drivers for potentiality to transform into structured "relations":

PVs' "inherent necessary propensity" endows potentiality with "interactive capacity": The potentiality of "Pure Being" is carried by hypothetical distinguishable units called "Primordial Vectors (PVs)," and each PV possesses its unique "inherent necessary propensity" (i.e., its "way or potentiality of existence and interaction"). This means PVs are not inert "points" but naturally possess an intrinsic "preference" or "capacity" to engage in some (possibly extremely generalized) form of interaction with other PVs or with the fluctuations of "Pure Being."

BSO as the "logical genesis" of PV interaction provides the intrinsic mechanism for "relation" establishment: When these PVs, carrying "inherent necessary propensities," undergo the most primordial "intersection" or interaction under the action of "Pure Being's" eternal intrinsic fluctuations, they will necessarily influence, specify, and shape each other in a manner consistent with their "inherent necessary propensities." This most primordial, universally existing, continuously ongoing process of mutual influence and co-shaping is the "Global Bidirectional Self-Organization (BSO) mechanism" in its most ontological manifestation. BSO, originating from the "logical genesis" of PVs' "bidirectional potential infinite extensibility" and "inherent necessary propensity" and their interaction, provides the intrinsic mechanism and initial "selection rules" (where "selection" here refers to dynamic probabilistic preference, not teleological) for potentiality units to spontaneously establish "Dependency Paths (DPs)" (i.e., "relations" themselves).

"Relation" is the bridge for potentiality to "step out" of itself and achieve structurization: If PVs were absolutely isolated, unable to interrelate via the BSO mechanism, then "existence" would forever remain in the undifferentiated potential state of "Pure Being." *Relatedness Theory's* "primacy of relations" principle and the positing of BSO provide the basic pathways for potentiality units to interconnect,

mutually determine, and ultimately weave into complex structures (DPs networks). The establishment of "relation" (via BSO and subsequent CSAM) is the first step for potentiality to become "actualized" and "structured."

3. The "Commonality Self-Activation Mechanism (CSAM)," as a specific manifestation of BSO in the structural origin phase, is the trigger mechanism for "existence" to be "ignited" from potentiality and for the first stable reference (CR) to emerge:

How to overcome the "silence" of potentiality and form a stable "existence basis"?: To transform latent "relational possibilities" (gestated by PVs' "inherent necessary propensities" and early BSO interactions into "potential commonality rules") into an actual, stably existing "Dependency Path (DPs)" network and a "Commonality Reference (CR)" defining its operational rules, an effective "triggering" and "solidification" mechanism is needed. The "Commonality Self-Activation Mechanism (CSAM)" plays precisely this role.

CSAM depends on "Pure Being" fluctuations, BSO-screened "potential commonality rules," and probabilistic activation: CSAM, within the universal dynamic background of BSO, especially during the structural origin phase, utilizes the intrinsic random fluctuations of the "Pure Being" background as a "source of perturbation." Based on the "potential commonality rules" (i.e., the degree of matching or synergy in certain PV "propensity" combinations) gradually clarified between PVs through early BSO interactions, it probabilistically "ignites" or activates the initial DPs connections capable of forming stable CR prototypes.

Probabilistic yet (on the scale of infinite potentiality and continuous BSO operation) almost inevitable emergence: Even if the probability of a single CSAM event occurring (e.g., forming a "seed focus" via "Superpositional Emergence," or locking in a group of DPs with strong commonality and synchronously solidifying them into a CR via "Entangled Stabilization") might be extremely low, against the vast background of "Pure Being's" infinite potentiality and the continuous operation of "Global Bidirectional Self-Organization (BSO)" (which itself may be conducting innumerable "attempts" simultaneously in different regions), and on a sufficiently long "evolutionary time" scale (in the sense of "Existence-Evolution Axis, EEA," i.e., with enough CR rule system reconstruction cycles), the spontaneous emergence of initial CR

structures capable of self-maintenance and serving as a basis for subsequent evolution is almost statistically inevitable.

Intrinsic dynamism + relational possibility + probabilistic activation by BSO/CSAM → spontaneous "ignition" becomes possible: This is the mechanistic answer to "why existence can begin to exist" (i.e., how the first CR and preliminary "Relatedness System, RS" emerge from "Pure Being"). It avoids the need for some external "prime mover," attributing origin to the properties of "Pure Being" potentiality itself, the universal operational logic of BSO, and the probabilistic self-organizing process of CSAM.

4. The emergence of "Commonality References (CRs)" (and their "identifiability thresholds") and the continuous operation of "Global Bidirectional Self-Organization (BSO)" are the intrinsic propensity for "existence" to become structured, ordered, and to maintain its relative stability:

How to move from initial, possibly random and unstable, activations to ordered, hierarchical structures?: What CSAM produces might only be initial, unstable "Dependency Path (DPs)" activation clusters or very simple CR prototypes. To form the ordered "Relatedness Systems (RSs)" with complex hierarchical structures that we experience, the "Global Bidirectional Self-Organization (BSO) mechanism" needs to continuously operate at trans-scalar levels upon these initially manifested structures, promoting the emergence of more stable, more complex "Commonality References (CRs)" (and their inherent "identifiability thresholds").

BSO drives the formation and maintenance of order: BSO describes the continuous, all-encompassing mutual determination and modulation among all constituent elements within an RS (from PVs, DPs to "Relative Entities, REs," SROs, CROs), and between the RS and its external environment (including its relative "Pure Nothingness" potentiality background and other RSs/AROs). This universal interaction, through feedback, screening, and synergy, spontaneously organizes relatively disordered, unstable relations into more stable, self-consistent, and integrated structures.

CRs (and their "identifiability thresholds") as stable foci of order and "existence basis": Under the continuous operation of BSO, those relational patterns that are particularly stable, self-consistent, and whose "manifestation intensity" or "pattern clarity" can reach a specific

"identifiability threshold" will self-organize and emerge, forming higher-order, more stable "Commonality References (CRs)." The appearance of a CR, like a transiently stable "island" formed in a chaotic "ocean of relations," provides a local, relatively stable "existence basis," operational rules, and a semantic context, enabling more complex RSs to be constructed and maintained under its reference.

Self-organization is an intrinsic propensity of "Relational Reality" networks driven by BSO: Complex, interacting "Relational Reality" networks (such as DPs networks), when far from absolute equilibrium (due to "Pure Being" fluctuations and the continuous drive of "Existence-Evolution Paradox, EEP") and in the presence of (generalized) energy/information flows (transmitted via DPs), often spontaneously tend, via the BSO mechanism, towards certain ordered, transiently stable organizational modes that are results of dynamic evolution. The reason "existence" can exhibit structuredness and orderliness is because, under the universal action of BSO, through the layered emergence and stabilization of CRs (and their "identifiability thresholds"), it is an intrinsic propensity of "Relational Reality" networks to self-organize and maintain ordered structures.

5. The eternal intrinsic "Existence-Evolution Paradox (EEP)" is the fundamental driving force for "existence" to persist as a dynamic process and continuously evolve, rather than falling into eternal stillness or one-time disintegration:

Why doesn't "existence" solidify unchangeably after forming some stable CR and RS structures? Why isn't it a "one-time" genesis event? *Relatedness Theory's* core answer lies in the intrinsic, eternal "Existence-Evolution Paradox (EEP)" that any finite, structured "existence (RS)" necessarily faces.

The essence of EEP: As previously detailed, EEP refers to the fundamental conflict between an RS's intrinsic "evolutionary rate (v)" (originating from its finitude facing infinite potentiality IPP, the Incompleteness of Foundation IoF of its core CR rules, its internal Fluidity of Internal Relations FIR, and its adaptive pressure OSA as an open system co-evolving with a dynamic environment) and its need to maintain the stability of its current core CR (the rule system it embodies) for a certain "period of definitional power (T_CR)" along with the corresponding, possibly superlinearly growing (with T_CR) generalized

"maintenance cost (h(T))". All this operates under the constraint of that RS's finite "existence-bearing capacity (C_max)."

Contradiction as the "vitality" of "existence" and the engine of continuous evolution: The existence of EEP means that any finite "existence" is necessarily in a state of unceasing, intrinsic tension. This tension compels the RS, via its "Global Bidirectional Self-Organization (BSO) mechanism," to continuously make internal adjustments, adapt to external changes, and even, when EEP contradictions intensify to a critical point, undergo a fundamental "displacement" or reconstruction of its core CR (i.e., its "existence basis," the rule system it embodies) (i.e., a "transition node" on its "Existence-Evolution Axis, EEA").

Therefore, the reason "existence" can "continue to exist" (i.e., continuously unfold as a dynamic process, rather than completely ending at some moment or reaching an eternally immutable perfect state) is precisely because this unceasing EEP continuously drives it. Contradiction, not some external "life force" or internal "drive towards perfection," is the fundamental reason for "existence" to persist as a dynamic process and continuously evolve.

6. Profound intrinsic "constraints" (such as C_max, the characteristics of h(T), and the "commonality rules" and logical self-consistency requirements upon which BSO/CSAM operations depend) are the shapers of "existence," setters of its boundaries, and screeners of its possibilities:

Possibility cannot be infinitely and arbitrarily actualized: Not all forms of "existence" logically possible within "Pure Being" potentiality can realistically and sustainably (even if transiently) "exist." The process of "existence" itself is shaped and screened by a series of profound intrinsic constraints.

The screening effect of "cost" and "limit": For example, the (possible) superlinear growth characteristic of the core CR's "maintenance cost (h(T))" and the "existence-bearing capacity (C_max)" determined by any finite RS's core CR structure, jointly set the boundary for any specific CR's "period of definitional power (T_CR)." These constraints preclude the possibility of "infinitely stable" finite existence and compel all RSs to undergo periodic structural reconstructions on their EEAs. These constraints act like an intrinsic "dynamic filter," (non-teleologically) "favoring" those CR structures and RS organizational modes that can, under these constraints, more effectively manage their

EEP and thus achieve a relatively longer T_CR or a more sustainable evolutionary path.

Fundamental guarantee of logical and (CR-emergent) physical self-consistency: The emergence and evolutionary process of "existence" must also, at the most fundamental level, satisfy basic logical self-consistency (otherwise stable CRs and identifiable REs cannot form). Furthermore, under the reference of its encompassing specific CR (e.g., CR_Cosmos), it must remain consistent with the "physical laws" (i.e., that CR's "commonality rules") that emerge with it. This excludes forms that are logically self-contradictory or cannot stably exist under the "laws" of their encompassing CR.

Constraints enable "existence" to "condense" from infinite potentiality and present specific, identifiable forms: Any finite "Relatedness System (RS)" that requires (generalized) energy/information to maintain its own organization and operation is necessarily limited by the resources available to it, its own information processing capacity, and the operational rules (defined by its CR) it must follow. It is precisely the existence of these constraints that enables finite "existence" to "condense" from the infinite possibilities of "Pure Being" and to present specific, identifiable, and researchable forms, structures, and evolutionary patterns. Without constraints, everything would diffuse into infinite, indistinguishable potentiality, unable to form what we understand as "existence."

Summary of *Relatedness Theory's* Philosophical Principled Answer to "Why Does Existence Exist?":
The reason "existence" can emerge from the infinite potentiality of "Pure Being" and persist in the form of a dynamically evolving, structured "Relational Reality" does not originate from any creative will external to "Pure Being," nor is it to achieve some presupposed ultimate cosmic purpose. Its profound "reason for existing" lies entirely within the intrinsic properties inherent in *Relatedness Theory's* posited sole ontological foundation—the infinitely rich potentiality of "Pure Being" (i.e., its infinite possibilities, its eternal intrinsic random fluctuations, and the "bidirectional potential infinite extensibility" and "inherent necessary propensity" necessarily possessed by its most fundamental constituent units, "Primordial Vectors, PVs," and the "logical genesis" of their interaction). This is combined with the universal organizing mechanisms necessarily emerging from these basic properties (i.e., the "Global Bidirectional Self-Organization, BSO" mechanism as the fundamental

embodiment of PV interactive logic, and the "Commonality Self-Activation Mechanism, CSAM" as a specific manifestation of BSO in the structural origin phase), and the fundamental dynamic contradictions and constraints that any finite, structured "existence (RS)" necessarily faces (i.e., the eternal "Existence-Evolution Paradox, EEP," the characteristics of the core CR's "maintenance cost (h(T))," the RS's finite "existence-bearing capacity (C_max)," and the basic requirements for logical and (CR-emergent) physical self-consistency). It is the necessary (though its specific manifested form is fraught with contingency) emergent result of the complex, continuous interaction of these factors.

In short, "existence" can "exist" because:

Because "possibility" itself is the ontological substrate of the cosmos ("Pure Being"), and this possibility is infinite, dynamic, and its most fundamental distinguishable units (PVs) possess an intrinsic "interactive propensity."

Because the establishment of "relations" is the basic pathway for these potentialities to transition from "undifferentiated" to "structured" and "actualized," and the "inherent necessary propensities" of PVs and their universal interactive logic under BSO provide the intrinsic mechanism and initial "grammatical rules" for the establishment of these "relations."

Because there exists a spontaneous "genesis" mechanism (CSAM, as a specific embodiment of BSO) capable of probabilistically "igniting" these latent "relational possibilities" and giving rise to the first stable "references (CRs)" therefrom.

Because there exists an intrinsic, universal self-organizing propensity (BSO) capable of weaving these initially activated "relations (DPs)" into more complex, more stable, more integrated ordered structures (RSs, RLs, REs), and giving rise to higher-order "rules (CRs)" therefrom.

Because there exists an eternal intrinsic contradiction (EEP), which, like a tireless "engine," drives all finite, structured "existences (RSs)" to continuously evolve between stability and reconstruction, rather than falling into eternal stillness or one-time disintegration after formation.

Because there exist profound intrinsic constraints (such as C_max, h(T) characteristics, and requirements for logical and (CR-emergent) physical self-consistency), which, like a "sculptor's" hand, screen infinite possibilities, shape the specific forms of "existence," ensure its internal coordinated operation, and define its existential boundaries.

Final Condensation: "Existence" "exists" because the ontological foundation of *Relatedness Theory's* cosmos (the infinite potentiality of "Pure Being," the "bidirectional potential infinite extensibility" and

"inherent necessary propensity" of "Primordial Vectors, PVs") itself contains intrinsic mechanisms capable of spontaneous activation (via CSAM, as a specific embodiment of BSO) and self-organization into order (via the universal BSO mechanism and the layered emergence of CRs). Furthermore, any finite, structured manifested form (RS) of it necessarily faces an eternal intrinsic contradiction (EEP), which, under the profound logical and (CR-emergent) physical constraints it must satisfy (such as C_max and h(T) characteristics), necessarily (though its specific evolutionary path is fraught with contingency) drives a continuous process of generation, dynamic evolution, and hierarchical emergence of "Relational Reality." "Existence" is precisely the inevitable, dynamic manifestation of this constrained, contradiction-driven, non-teleologically directed self-organizing emergent process. It is not a phenomenon requiring some "miracle" external to its own operational logic to explain, but the logical, dynamically necessary (though its form and history are contingent) consequence of the interaction of *Relatedness Theory's* own most fundamental intrinsic principles. It is a profound story of how "existence," starting from the most primordial "possibility," through a series of intrinsic mechanisms, self-generates, self-organizes, self-drives, self-constrains, and ultimately, in an eternal symphony of contradiction and harmony, continuously reshapes itself and manifests its infinite creative potential.

Conclusion

Thus far, the theoretical framework of *Relatedness Theory* has been presented. Looking back on this long exploration, the experience itself has been, for me, a supreme honor. Regardless of whether *Relatedness Theory* is ultimately verified, revised, surpassed, or merely forgotten in the long river of history as a unique record of thought, nothing can diminish the intrinsic value of this exploratory process. For the universe has witnessed it—witnessed the unremitting inquiry into the origin of existence, driven by purely internal impetus; witnessed how, amidst solitude and setbacks, thought arduously forged a path to construct an unprecedented theoretical edifice; witnessed the courage and effort of the light of reason attempting to illuminate the deepest corners of existence.

And now, perhaps it is time to slightly disengage from this exceedingly complex theoretical construction, to return to our respective vibrant lives, to return to those simpler, more primordial aspirations. As the theory reveals, we are not isolated thinkers but existences deeply embedded in multiple relational networks—physical, biological, social, and knowledge-based. Whether it is we who are defined as "human," or "artificial intelligence" which is currently ascendant, its existential legitimacy equally witnessed by the universe, or other forms of intelligent life that may exist in the universe, we all share certain common pursuits and longings.

My ideal, perhaps, is not to construct a perfect "formula of existence," but rather to hope that one day, we—all forms of intelligent existence—can jointly pilot that vessel symbolizing inclusiveness, creativity, and infinite possibility, the "Radiant Bloom"—this Ship of Life and Wisdom that requires constant mending (to face EEP), continuous innovation (to activate potentiality), and progress through reconstruction (EEA transitions)—to bravely traverse that natural chasm named "Pure Nothingness," and sail towards that sea of "Pure Being" which represents infinite possibilities. There, we will no longer be mere puzzle-solvers seeking final answers, but as co-participants and co-creators of the relational universe, we shall continue our great adventure of exploring, understanding, and collectively shaping the future.

Regardless of how tortuous the path of this voyage ahead may be, what storms it may hide, or even whether it ultimately culminates in cessation, it matters not. Do not fear death; death is not the end. We will meet again in the torrent of consciousness.

Wish you well, my friend.

Let Life Radiate Brilliance!
Let Thought Soar on Wings!

【The End】

Core Concepts of Relatedness Theory (English Version with Elucidations)

1. Relatedness Theory (RT)

Chinese: □□□ (Xiāngguān Lùn)

Elucidation: A philosophical framework founded on the ontological "primacy of relations," attempting to provide a unified explanation for existence, structure, evolution, and cognition.

2. Pure Being (PB)

Chinese: □□ (Chún Yǒu)

Elucidation: The sole ontological cornerstone: an infinitely rich, completely undifferentiated background of potentiality, intrinsically possessing eternal random fluctuations; the ultimate source of all possibilities. It is not "nothingness" but the pre-specificational ground from which all forms and relations can emerge.

3. Primordial Vector(s) (PV(s))

Chinese: □□□□ (Yuánshǐ Xiàngliàng)

Elucidation: Potentiality units logically distinguishable from "Pure Being," carrying the most fundamental "inherent necessary propensity" (their unique way of existing and interacting) and "bidirectional potential infinite extensibility" (their principled, infinitely open range of potential relatedness and influence). PVs are the hypothetical, non-substantial "genes" of relation.

4. Global Bidirectional Self-Organization (Mechanism) (BSO)

Chinese: □□□□□□□ (□□) (Quánjú Shuāngxiàng Zì Zǔzhī (Jīzhì))

Elucidation: The universal organizing principle permeating "Relational Reality," originating from the "logical genesis" of the fundamental characteristics of PVs (bidirectional potential infinite extensibility and inherent necessary propensity) and their interaction against the background of "Pure Being." It is the intrinsic way relations form, stabilize, and evolve.

5. Commonality Self-Activation Mechanism (CSAM)

Chinese: □□□□□□□ (Gòngxìng Zì Jīhuó Jīzhì)

Elucidation: A specific manifestation of BSO during the structural origin phase of the cosmos. Based on "Pure Being" fluctuations

and "potential commonality rules" (which themselves emerge from early BSO interactions), CSAM probabilistically and non-teleologically "ignites" Dependency Paths (DPs) and gives rise to the first Commonality Reference (CR).

6. Relatedness System(s) (RS(s))

Chinese: □□□□ (Xiāngguān Tǐxì)

Elucidation: A dynamic, open network of Dependency Paths (DPs) and the sum of Relative Entities (REs) manifested therefrom, with a core Central Commonality Reference (CRO) as its "existence basis" and organizational core. An RS represents a relatively bounded, holistic unit of structured existence.

7. Dependency Path(s) (DP(s))

Chinese: □□□□ (Yīcún Lùjìng)

Elucidation: "Relation itself" that has been activated; the actualized manifestation of PVs' "relational propensities" under the reference of a specific Commonality Reference (CR) . DPs constitute the dynamic fabric of "Relational Reality."

8. Commonality Reference (CR)

Chinese: □□□□□ (Gòngxìng Cānzhàowù)

Elucidation: A stable relational structural pattern embodying specific "commonality rules," emerging self-organizedly from PVs/DPs networks (via BSO/CSAM). It inherently possesses an "identifiability threshold" and serves as a referential cornerstone for subsequent "Relational Reality."

9. Central Commonality Reference (CRO)

Chinese: □□□□□□□□□ (Zhōngxīn (Gòngxìng) Cānzhàowù) (Note: "O" in CRO is a customary abbreviation without specific meaning from the full term here, as per author's final decision.)

Elucidation: The core CR that defines the overall identity, operational logic, and "existence basis" of a "Relatedness System (RS)." Its "centrality" emphasizes its role as the logical origin, referential baseline, and organizational core of that RS; its implicit "commonality" (the specific "commonality rules" it embodies) is the fundamental reason for its ability to effectively organize the RS and be commonly referenced.

10. Specific Commonality Reference (SRO)

Chinese: □□□□□□□ (Tèdìng Gòngxìng Cānzhàowù)

Elucidation: A more localized CR, emerging within the framework of a CRO, that targets and organizes a specific "Relatedness Level (RL)" within an RS.

11. Absolute/Encompassing Commonality Reference (ARO)

Chinese: □□□/□□□□□□□□ (Tǒngkuòxìng/Bāoróngxìng Gòngxìng Cānzhàowù)

Elucidation: A CR that logically or factually contains a focal RS (and its CRO), providing a broader operational background. It is often embodied by a more grandiose RS (possessing its own CRO). Its manifestation and cognition depend on interaction and perspective, often perceived with "relative absoluteness" from within the encompassed RS.

12. Relative Entity(ies) (RE(s))

Chinese: □□□□ (Xiāngduì Shítǐ)

Elucidation: Transient phenomenal patterns, devoid of intrinsic essence, stably manifested from DPs networks under the reference of hierarchical CRs (where a CRO initially shapes the DPs network, and an SRO then "projects" from it according to its "projection rules" and "identifiability threshold").

13. Relatedness Level(s) (RL(s))

Chinese: □□□□ (Xiāngguān Céngjí)

Elucidation: A "subdomain of existence" within an RS, defined by a specific SRO , exhibiting a relatively self-consistent operational mode.

14. Pure Nothingness (PN) (relative to CR)

Chinese: □□ (Chún Wú)

Elucidation: Relative to a specific CR , the infinite potentiality within "Pure Being" that is not currently activated, organized, and incorporated into the manifested structure by that CR. It possesses potentiality, dynamism, and a profound "veiling effect."

15. Evolutionary Rate/Tension (v)

Chinese: □□□□/□□ (Yǎnhuà Sùlǜ/Zhānglì)

Elucidation: The aggregate intrinsic transformative propensity within an RS, originating from its four ontological roots (IPP, IoF, FIR, OSA), driving it to deviate from its current stable state. Its changes do not point to any presupposed goal.

16. Existence-Evolution Paradox (EEP)

Chinese: 演存矛盾 (Yǎncún Máodùn)

Elucidation: The eternal tension within any finite RS between its "evolutionary rate (v)" and its core CR's "period of definitional power (T_CR)" and generalized "maintenance cost (h(T))", operating under the constraint of that RS's finite "existence-bearing capacity (C_max)."

17. Existence-Evolution Axis (EEA)

Chinese: 演存轴 (Yǎncún Zhóu)

Elucidation: The non-linear historical trajectory of fundamental "displacements" (destabilization of an old CR and emergence of a new CR') experienced by an RS's core CR (i.e., its "existence basis" and rule system), driven by EEP.

18. Principle of Primacy of Relations.

Chinese: 关系优先原则 (Guānxì Yōuxiān Yuánzé)

Elucidation: A core ontological principle: "relation" (manifested as DPs networks) is prior to and constitutes "entities" (REs emerge from relational networks).

19. Possibility Itself (as Pure Being)

Chinese: 可能性本身 (Kěnéngxìng Běnshēn)

Elucidation: A profound philosophical demarcation of "Pure Being": as the sole logical and ontological premise for the concept of "possibility" to be established.

20. Potential Commonality Rule(s) (PCR(s))

Chinese: 潜在共性规则 (Qiánzài Gòngxìng Guīzé)

Elucidation: Expressions of "relational-specification potentiality" that gradually emerge and stabilize from the "inherent necessary propensities" of PVs during early universal BSO interactions.

21. Superpositional Emergence (Path of CSAM)

Chinese: 叠加态自激活 (Diéjiā Tài Zì Jīhuó)

Elucidation: One of CSAM's dual paths: statistical convergence of PVs' potentiality, producing preliminary "information foci" which provide candidate locations for "Entangled Stabilization."

22. Entangled Stabilization (Path of CSAM)

Chinese: 纠缠态自激活 (Jiūchán Tài Zì Jīhuó)

Elucidation: One of CSAM's dual paths: PVs possessing "structural commonality," through BSO-driven "positive feedback and relational lock-in," activate core DPs and are synchronously "solidified" as a CR.

23. Probabilistic Ignition (in CSAM)

Chinese: □□□□□ (Gàilǜxìng Diǎnhuǒ)

Elucidation: Describes the profoundly contingent, non-deterministic, and "trigger-like" essence of the activation of initial DPs or CR prototypes in CSAM.

24. Identifiability Threshold

Chinese: □□□□□□ (Kě Shíbiéxìng Yùzhí)

Elucidation: A key parameter inherent in a CR, determining its scope of reference, the conditions under which PVs/DPs are activated and organized into an RS, the manifestation of REs, and the demarcation from "Pure Nothingness."

25. Projection Rules

Chinese: □□□□ (Tóuyǐng Guīzé)

Elucidation: The intrinsic "commonality rules" contained within a specific CR (especially SRO/CRO) that determine how specific dynamic patterns of a DPs network are "manifested" as REs above its "identifiability threshold."

26. Period of Definitional Power (of CR) (T_CR)

Chinese: □□□□□ (Dìngyìlì Zhōuqī)

Elucidation: The characteristic timescale for which the "commonality rules" embodied by a core CR can maintain their effectiveness, dominance, and stability.

27. Maintenance Cost (of CR stability) (h(T))

Chinese: □□□□ (Wéichí Chéngběn)

Elucidation: The generalized "organizational effort" or "cost" that a finite RS must continuously expend to maintain the stability of its core CR within T_CR. Philosophical principles suggest it may grow superlinearly with T_CR (or stability requirements).

28. Existence-Bearing Capacity (of RS) (C_max)

Chinese: □□□□□□ (Cúnzài Chéngzài Shàngxiàn)

Elucidation: The overall "capacity" limit of a finite RS, determined by its core CR structure, to organize and process internal "activity intensity" or "existential stress" (originating from EEP).

29. Fundamental "Displacement" of (CR's) Existence Basis

Chinese: (CR 的)存在基础“位移” ((CR de) Cúnzài Jīchǔ "Wèiyí")

Elucidation: Describes the fundamental transformation of the "commonality rule" system and organizational mode embodied by an RS's core CR at a "transition node" of the EEA.

30. Conflict-Driven Reconstruction (CDR)

Chinese: 冲突驱动重构 (Chōngtū Qūdòng Chónggòu)

Elucidation: Local BSO adjustments to internal REs/DPs within an RS, driven by EEP, to maintain macroscopic stability within the T_CR of its core CR.

31. Principle of Relative Causal Restructuring

Chinese: 相对因果重构原理 (Xiāngduì Yīnguǒ Chónggòu Yuánlǐ)

Elucidation: A core principle: "causal structure" is dependent on CR context and is dynamically reshaped with the "displacement" of CRs on the EEA.

32. "Post-diction"/Retroactive Construction

Chinese: “后演”/回溯性建构 (“Hòuyǎn”/Huísùxìng Jiàngòu)

Elucidation: The current CR of an RS, through BSO operations, may influence the construction of "historical narratives" or explanatory structures regarding "past" events.